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Canada

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About the CSC

The Construction Sector Council (CSC) is a national organization committed to the development of a highly skilled workforce – one that will support the future needs of the construction industry in Canada. Created in April 2001, and financed by both government and industry, the CSC is a partnership between labour and business.

This report is available electronically at www.csc-ca.org, as well as at www.bcbuildingtrades.org and www.itabc.ca.

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- YWCA Employment Resource Centre, Vancouver, B.C.
- South Vancouver Neighbourhood House, Vancouver, B.C.
- SUCCESS Employment Services, Vancouver, B.C.
- Surrey Employment Resource Centre – Newton, SERC-N, Surrey, B.C.

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Introduction

While the growth of the construction industry increasingly hinges on the availability of a well-educated and highly-skilled workforce, there is a general consensus that managing the workforce requirements through cyclical upturns and downturns and through demographic shifts is critically important to the current and future viability of the sector. The construction industry is currently looking at several non-traditional sources to meet its labour needs. One of these sources is the foreign-trained immigrant population of construction tradespersons.

The *Foreign Credential and Skills Assessment (FCSA) Workbook* has been developed as a tool for settlement counsellors, employment counsellors and others who work in the area of immigrant integration into the Canadian workforce. The 26 trades outlined in detail in this workbook are all Red Seal trades within the construction industry. The *FCSA Workbook* is intended to be used specifically with clients whose skills fit into one or more of these trades. Although designed to assist immigrant clients, we believe the *FCSA Workbook* will be useful also for assisting Canadian-trained workers and members of targeted groups such as youth, Aboriginal people and women.

A man from Iran who was a structural engineer immigrated to Canada with a good deal of experience in designing multi-family dwellings. He was told that he should easily find employment in the construction industry in Canada. However, he found that his experience from Iran was not applicable in Canada. Here, experience in the design of wood frame construction is needed; his experience lay with cement block construction only. Further, he had no experience with seismic requirements.

– Michael Hardman, trades employment consultant

The issues around foreign credential assessment (FCA) are complex, with several stumbling blocks along the way. One major barrier in the process is that many immigrants may have a trade that we do not recognize or that has a different occupational title than the one used in Canada. Sometimes, even when the trade name is recognized, the training the client has received may be different from the training for the trade with the same title in Canada. Sometimes, the materials commonly used in other countries may not be the same as those commonly used here, and so the tradesperson's experience is not within the Canadian context. Finally, the proportion of theoretical knowledge to practical experience required for certification may be different.

An immigrant from the Horn of Africa had training in his home country as a mechanical engineer and hoped to find work as one in Canada. However, upon assessment, it was shown that he had graduated from a two-year program and that his only practical mechanical experience was trying to repair a tractor that dated back to the 1950s. He also had a small amount of welding experience but was not interested in pursuing that trade in Canada.

– Carl Foley, employment counsellor

Assessment and recognition of transferable skills is one process that can significantly benefit immigrant tradespersons who need to find a job quickly but who do not qualify to practice the trades in which they worked in their home countries. Although many construction jobs require specific skills, there is also a good deal of cross-over among the skills, knowledge and experience in construction trades.

Components of the *FCSA Workbook*

The *FCSA Workbook* is meant as a tool for employment counsellors with little or no knowledge of construction trades. It provides a systematic approach for the counsellor and client to use together to identify the client's experience and skills within a comprehensive range of competencies related to his or her trade. It includes the following:

- charts that list the major skills of each trade and within those major skills, the competencies required; and
- forms and templates to be used by the counsellor during the intake and assessment process, and for the client to use in applying for work.

The components are designed for flexible use and can be used separately or together. Users may find that only one of the components is useful for their purposes, or they may find that at one time or another all the materials can assist them.

An electrical engineer from Romania had been responsible in his home country for maintenance in a manufacturing plant where he had often repaired equipment. His experience was similar to that of a millwright. He was successfully matched with a bakery in Canada, where he did repairs and kept a whole range of machines – from mixers to packaging machines – in good running order. He obtained this job without needing certification in a trade.

– Danny O'Neill, trades consultant

Forms and templates

1. **Trades supplement to client intake form:** This form is intended as a supplement to an agency's own client intake form. It asks questions that focus on the client's knowledge, skills, abilities and interests in Red Seal construction trades. The form can be completed with the help of a counsellor, if necessary.
2. **Trade skills competency charts:** Each chart is an inventory of the major competencies for the trade and the corresponding sub-set of skills and tasks.
3. **Skills summary and gaps analysis template:** The client's responses on the competency chart are summarized using this form, and the gaps in the client's skills and experience are noted here. The counsellor will recommend a plan for "next steps", which the client can choose to follow based on the summary of skills and the analysis of gaps.
4. **Client's employment portfolio template:** This is a template and checklist that identifies and

explains the components that make up an employment portfolio. In addition to the listed suggestions, there is space for the client or counsellor to add others.

5. **Job summary template and instructions:** This template is for the client's use. It suggests to the client a well-organized design for the contents and layout of his or her work history.

Methodology

The central component of the *FCSA Workbook* is the trade skills competency charts that have been developed for each of the 26 Red Seal construction trades. These charts, which are essentially inventories of skills and competencies, were developed by a team with close to 150 years of combined expertise and experience in the skilled trades and with the apprenticeship system.

The content of the charts is derived from the "DACUM" charts (see example at the end of this introduction), which were developed by industry experts engaged in the design of apprenticeship training. The DACUM information was then compared to and corroborated by the information in the corresponding national occupational classifications (NOC). This was done to ensure that the terminology and information were compatible and to ensure that the information in the competency charts was complete and accurate.

In developing the charts, effort was made to take an employer's perspective. For this reason, the charts focus largely on the practical skills required to operate as a skilled tradesperson on the job site.

Excluded from the charts are competencies and skills that focus on safety, trades math and Essential Skills. Safety is of primary importance for every trade with the construction industry. It is not an optional requirement or qualification but rather an essential one. It is the employer's responsibility to ensure that all workers on the work site have had sufficient safety training.

Levels required in trades math, document reading, text reading and other Essential Skills can be found for many of the Red Seal construction trades on the HRSDC "Essential Skills" website:

http://srv108.services.gc.ca/english/general/home_e.shtml

On the website, the Essential Skills profiles can be searched by NOC number or by job title.

Apprenticeships

As a final word, we would like to emphasize that entering an apprenticeship is another potential option for assisting immigrant tradespersons to integrate into the Canadian workforce. Foreign-trained tradespersons can upgrade their practical and/or technical skills by entering a short-term apprenticeship. Apprenticeships combine on-the-job training with technical training at a recognized training institution. They introduce the recent immigrant to Canadian trade terminology and standards and provide an opportunity to upgrade communication skills with less pressure than could be expected of a journeyperson.

Apprenticeship is not a method of cheap labour. The length of an apprenticeship may be from one to four years, depending on ability, with a commensurate pay scale. The institutional portion of the training is free, and other subsidies may be available through federal or provincial incentive programs.

Example of a DACUM chart

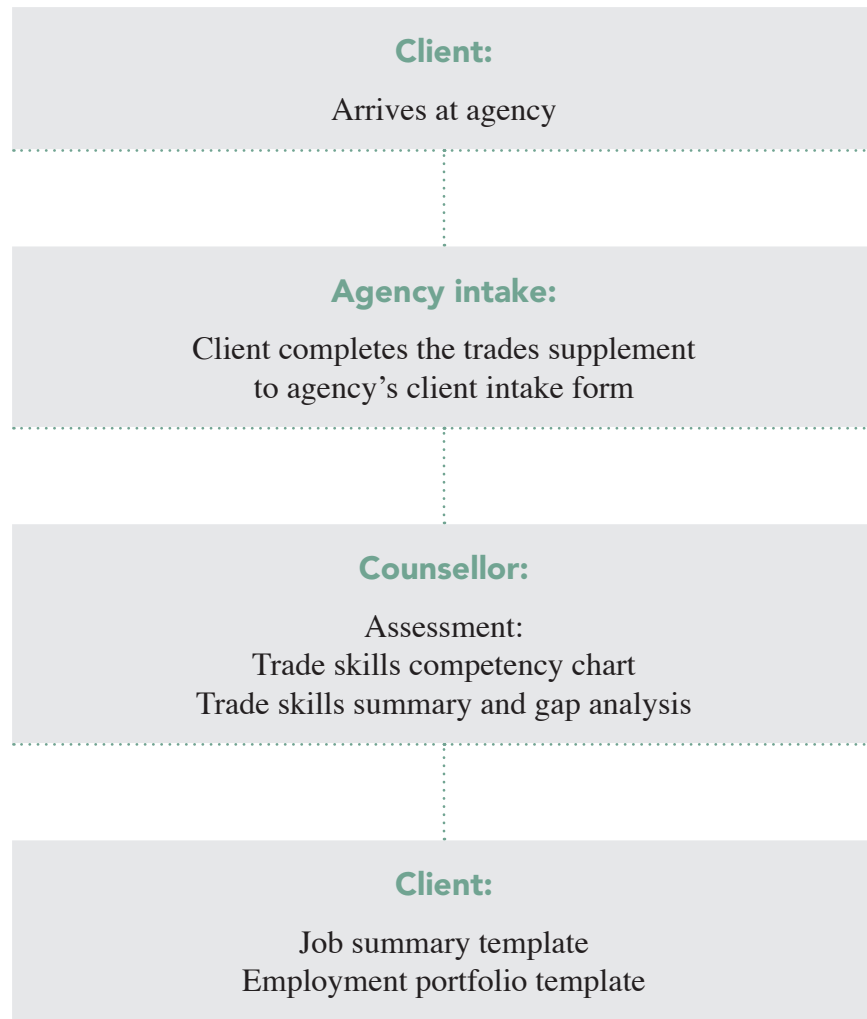
Industrial Instrumentation Mechanic APPRENTICESHIP COMPETENCY PROFILE CHART																											
Tubing and fittings A	Describe types and applications of tubing and fittings	Interpret tubing specifications	Identify fitting types	Bend and install tubing and fittings	Pressure test installation																						
	1				1					1					1												
Industrial air supply systems B	Describe air system operation and components	Inspect air systems	Service instrument air supply and equipment	Test and troubleshoot air systems																							
	1				1					1					1												
Indicating and recording instruments C	Describe process indicators	Describe process recorders	Install indicators	Repair and calibrate indicators and recorders																							
	1				1					1					1												
Pressure measurements D	Describe process indicators	Describe primary standards	Select pressure measurement devices	Describe pressure-related safety concerns	Use pressure test equipment	Repair and calibrate pressure devices																					
	1				1					1					1												
D	Install pressure gauges	Install pressure transmitters																									
	1				1																						
Level measurements E	Describe level measurement methods	Select level measuring devices	Describe level related safety concerns	Repair and calibrate level measuring devices	Install level measuring devices																						
		2			1					1						2					2						
Temperature measurement F	Describe units and standards	Describe temperature measuring methods	Select temperature measuring devices	Describe temperature related safety concerns	Use temperature test equipment	Repair and calibrate temperature measuring devices																					
	1				1	2					2				1						2				1		4
F	Install temperature measuring devices																										
	1																										

Industrial Instrumentation Mechanic APPRENTICESHIP COMPETENCY PROFILE CHART (continued)																											
Flow measurement G	Describe units and standards				Describe flow measuring methods				Select flow measuring devices				Describe flow related safety concerns				Repair and calibrate flow meters				Install flow measuring devices						
	1				1	2		5				5	2				2			5	2						
Density measurement H	Describe units and standards				Describe density measuring methods				Select density measuring devices				Describe density related safety concerns				Repair and calibrate density meters				Install density measuring devices						
		2				2				2				2				2				2					
Consistency and viscosity measurement I	Describe units and standards				Describe consistency measuring methods				Select consistency measuring devices				Describe consistency related safety concerns				Repair and calibrate consistency meters				Install consistency measuring devices						
				5				5				5				5				5				5			
Weight measurement J	Describe units and standards				Describe weight measuring methods				Select weight measuring devices				Describe weight related safety concerns				Install weight measuring devices				Repair and calibrate weight measuring devices						
	1					2				2				2				2				2					
Other measurement technologies K	Measure vibration and speed				Apply other measurement technologies																						
			3				3																				
Process gases measurement L	Describe gas related safety concerns				Measure H ₂ S				Measure CO				Measure CO ₂				Use gas chromatograph				Measure O ₂ and combustibles						
				5				5				5				5				5				5			
L	Apply other gas measurements																										
				5																							
Environmental protection devices measurement M	Measure PH, ORP and specific ion				Measure conductivity				Measure stack gases				Describe ambient environment protection devices														
				4				4				5				4											
DC electricity basic principles N	Describe DC electricity				Describe Ohm's law				Describe DC electrical safety concerns				Use measuring devices				Describe basic electrical components				Assemble series and parallel circuits						
	1				1				1				1	2			1				1				1		
N	Assemble combination DC circuits				Troubleshoot electrical circuits																						
	1				1																						

Industrial Instrumentation Mechanic APPRENTICESHIP COMPETENCY PROFILE CHART (continued)																											
AC electricity basic principles O	Describe AC electricity				Describe impedance				Describe AC electrical safety concerns				Describe AC devices				Assemble and troubleshoot ladder logic circuits				Use AC measuring devices						
	2				2				2				2				2				2				2		
Wiring installation P	Apply electrical code				Apply proper grounding techniques				Install cabling				Install field devices				Describe fibre optic systems										
	2					3	4	5		3			1	3			3										
Communication systems Q	Describe Communication Systems																										
				5																							
Electronic equipment installation and service R	Describe basic electronic components				Use electronic repair service equipment safely				Assemble and test basic electronic circuits				Troubleshoot and repair electronic circuits				Use soldering techniques				Use an oscilloscope						
		3				3				3				4		1						3					
Signal conditioner installation and maintenance S	Describe pneumatic relays				Describe electronic transducers				Calibrate, troubleshoot and repair signal conditioners																		
	1	3			2		4		2	3	4																
Digital electronics basic principles T	Use boolean algebra				Describe digital components				Describe D/A and A/D converters				Use test equipment on digital circuits														
		3				3				3				3													
Computers U	Operate PC's				Configure and troubleshoot IBM PC hardware and software				Program and troubleshoot PLC's																		
	2				2					4																	
Distributed control systems V	Describe DCS systems				Describe DCS-related safety concerns				Configure DCS systems				Install DCS system hardware and software				Service, troubleshoot DCS computer equipment										
			4	5				5			4	5			4	5				5							

Industrial Instrumentation Mechanic APPRENTICESHIP COMPETENCY PROFILE CHART (continued)																											
Final control elements servicing W	Describe valve types and applications	Describe valve related safety concerns	Describe valve sizing	Repair and maintain control valves	Repair and maintain actuators	Repair and setup valve positioners																					
	1	1	3	1	1	2																					
W	Select and maintain solenoid valves	Describe other final control elements																									
	3	3																									
Regulators and relief valves servicing X	Describe regulatory and relief valve types and applications	Describe regulator and relief valve related safety concerns	Install and maintain regulators and relief valves	Repair self actuating temperature controllers																							
	1	1	1	1																							
Controllers, installation and service Y	Describe pneumatic controllers	Describe electronic controllers	Configure controllers	Install, repair and maintain pneumatic controllers	Install, repair and maintain electronic controllers	Read and make loop diagrams																					
	3	5	5	3	5	3																					
Control theory application Z	Describe principles of proportional, integral and derivative control	Describe applications of control strategy	Tune control loops	Troubleshoot unstable control loops	Describe advanced control techniques																						
	3	3 5	3 4 5	3 4	3 4 5																						
Process control techniques application AA	Read process and control drawings	Analyze industrial process	Analyze control strategies for industrial processes	Troubleshoot process loops																							
	3 4 5	3 4 5	3 4 5	3 4 5																							

The *FCSA Workbook* process flow chart



Forms and templates

Trades supplement to agency client intake form

Please answer the questions below. The information you give us will help us help you as you look for a good job.

A counsellor may help you complete this form.

First name: Last name:

Home address:

.....

..... Postal Code:

Phone #: Cell (mobile):

Email:

1. Are you currently receiving, or are you eligible to receive, financial assistance from any level of government? ☐ Yes ☐ No

2. If yes, provide information:

.....

3. What is your first language?

4. What other languages do you speak?

5. In what country were you born?

6. When did you arrive in Canada? Month Day Year

7. What is your current residential status?

- ☐ Canadian citizen
- ☐ Landed immigrant, applied for Canadian citizenship
- ☐ Refugee

8. Can you drive a car? ☐ Yes ☐ No

Can you drive a truck? ☐ Yes ☐ No

Do you own a vehicle? ☐ Yes ☐ No

Do you have a valid drivers' licence? ☐ Yes ☐ No What Class?

Do you have an international drivers' licence? ☐ Yes ☐ No

Education:

9a. In what country did you go to school when you were 12 to 18 years-old?

Country: Start and finish dates:

Country: Start and finish dates:

Do you have a secondary school graduation certificate? ☐ Yes ☐ No

Do you have post-secondary education? ☐ Yes ☐ No

9b. Were any of your post-secondary qualifications obtained in Canada? ☐ Yes ☐ No

If yes, which ones?

9c. Have any of your post-secondary qualifications been accepted as equivalent in Canada?

☐ Yes ☐ No

If yes, which ones?

9d. Have you taken any safety courses?

WHMIS ☐ Yes ☐ No

First aid ☐ Yes ☐ No

Safety orientation ☐ Yes ☐ No

10. Are you registered with any professional or work-related association?

Professional engineers ☐ Yes ☐ No

Technology association ☐ Yes ☐ No

Union ☐ Yes ☐ No

Other (Please name)

11. Do you own your own tools? ☐ Yes ☐ No

12. Here is a list of occupations in the construction industry. Do you have a special interest or preference for any occupations on this list? (There are other allied occupations, which can be identified by your counsellor, that you can consider as a career.)

☐ Yes ☐ No

Please check the box beside each trade that especially interests you.

☐ Boilermaker

☐ Millwright

☐ Bricklayer

☐ Mobile Crane Operator

☐ Carpenter

☐ Painter and Decorator

☐ Concrete Finisher

☐ Plumber

☐ Construction Electrician

☐ Power Line Technician

☐ Floor Covering Installer

☐ Refrigeration and Air Conditioning Mechanic

☐ Glazier

☐ Roofer

☐ Heavy-Duty Equipment Mechanic

☐ Sheet Metal Worker

☐ Industrial Instrument Technician/Mechanic

☐ Sprinkler System Fitter

☐ Insulator (Heat and Frost)

☐ Steamfitter/Pipefitter

☐ Instrument Mechanic

☐ Steel Fabricator

☐ Ironworker

☐ Tiler

☐ Lather

☐ Welder

☐ Machinist

Please list the tools and equipment you know how to use:

.....

.....

.....

.....

By signing this document you allow us to give information to possible employers or training agencies so that we can improve your employment opportunities. You may remove your permission at any time through written instructions to us.

Date:

.....

.....
Please sign your name

.....
Print your name



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Trade skills summary and gap analysis

Client name:

Address:

City: Postal code:

Telephone:

Interviewing counsellor:

Date:

.....
JOB OBJECTIVE:
.....

Previous trade experience

This client has completed a **trade skills competency chart** with the assistance of his/her employment counsellor. The client's responses have been analyzed and summarized, as follows:

Major competencies: skills, knowledge and abilities

.....

.....

.....

.....

.....

.....

.....

Skills gaps

The client does not have experience with the following:

Recommendations

The client may choose one of the following options as a next step:

Date:

Client's signature

Counsellor's signature



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The employment portfolio

To our client:

It is a good idea to keep in one place all the information you will need when you are applying for a job. This information will include, for example:

- diplomas and certificates
- letters of reference
- your job history
- your education history
- resume

And more!

We suggest that you create an **employment portfolio** that will contain all the required information and documents. You can take this portfolio with you when you go to a job interview.

- ▲ The employment portfolio will help you to talk to the employer about what you know and what you can do.
- ▲ The employment portfolio will contain the proof of your skills and knowledge in the form of certificates, diplomas, transcripts and other formal documents.

Many people use a binder for their portfolio. If you do this, be sure to use plastic sleeves to protect your valuable documents rather than punching holes in them to put them directly into the binder.

The next two pages include suggestions for what your portfolio could contain.

Portfolio Checklist

✓	Portfolio item	What it is
	Title page	Your name and contact information
	Introduction (cover letter)	<p>This page is a short letter to your employer. In this letter you will</p> <ul style="list-style-type: none"> • introduce yourself, • state your job objective, and • say why you are qualified to do this job. <p>This letter should only include two or three paragraphs.</p> <p>Ask your employment counsellor for an example of a “cover letter” and for some suggestions on how to write a good letter.</p>
	Resume	<p>Make sure your resume matches the job you are applying for. You may need to change it a little each time you apply for a different job.</p> <p>Ask your employment counsellor for an example of a resume and some suggestions on how to write a good resume.</p>
	Job summary	<p>Your job summary should contain the following information for each job you have had:</p> <ul style="list-style-type: none"> • job title • name of company • address and telephone number of company • dates worked at this company • contact person at the company • duties performed for the company • skills used and knowledge required to do these duties • tools and equipment used • personal characteristics (qualities) required for this job <p>For assistance in writing your job summary, ask your employment counsellor for the hand-out called “Job summary”</p>
	Education history	<p>Your education history should include the following:</p> <ul style="list-style-type: none"> • name of educational institutions • city, province, country where the education institutions are located • dates attended • degrees, diplomas or certificates received
	Awards or other honours	<p>Have you received special recognition for work you have done? This might be an award, a special letter of congratulations or appreciation, or a newspaper article about you.</p> <p>Remember to protect these valuable items in a plastic sleeve.</p>
	Transcripts	<p>You may include transcripts with the grades and marks you received in the educational institutions you have attended.</p> <p>Remember to protect these valuable items in a plastic sleeve.</p>
	Certificates, diplomas	<p>You may include the certificates and diplomas you have received.</p> <p>Remember to protect these valuable items in a plastic sleeve.</p>
	Letters of reference	<p>If you have letters of reference from previous employers or from others who recommend your work or your good character, you may include them.</p> <p>Again – do not punch holes in them for the binder but rather put them in plastic sleeves to protect them.</p>

The following is a space for you to add your own ideas

✓	Portfolio item	What it is

The job summary

A job summary provides information about the work you have done in the past. Here is a suggestion for how to do a job summary that is short and has all the information an employer will want.

For each job you list, include the following:	Explanation
Job Title	For example: Carpenter
Name of company	
Address and telephone number of company	
Dates you worked at this company	
Contact person at the company	For example: your supervisor, the person who hired you or the head of personnel.
Duties performed for the company	List the tasks you did.
Skills used and knowledge required to do these duties	What knowledge did you need and what skills did you use in order to do the job?
Tools and equipment used	What tools did you use? What machines did you operate?
Personal characteristics required for this job	

Skilled trades included in the *FCSA Workbook*

BOILERMAKER
BRICKLAYER
CARPENTER
CONCRETE FINISHER
CONSTRUCTION ELECTRICIAN
FLOOR COVERING INSTALLER
GLAZIER
HEAVY-DUTY EQUIPMENT MECHANIC
INDUSTRIAL INSTRUMENT TECHNICIAN/MECHANIC
INSULATOR (HEAT AND FROST)
IRONWORKER
LATHER
MACHINIST
MILLWRIGHT
MOBILE CRANE OPERATOR
PAINTER AND DECORATOR
PLUMBER
POWER LINE TECHNICIAN
REFRIGERATION AND AIR CONDITIONING MECHANIC
ROOFER
SPRINKLER SYSTEM FITTER
SHEET METAL WORKER
STEAMFITTER/PIPEFITTER
STEEL FABRICATOR
TILESETTER
WELDER



Trade skills competency charts

Notes Notes Notes Notes Notes Notes Notes Notes Notes

TRADE TITLE:

Boilermaker

 (NOC: 7262)

DESCRIPTION: Boilermakers fabricate, assemble, erect, test, maintain and repair boilers, vessels, tanks towers, heat exchangers and other heavy metal structures.

OTHER TITLES: Construction Boilermaker, Boiler Fitter, Boiler Installer, Industrial Boilermaker, Marine Boilermaker, Pressure Vessel Fabricator

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Steel Fabricator, Steamfitter

MAJOR SKILLS		Can do	Cannot do
Use tools	Hand tools	<input type="radio"/>	<input type="radio"/>
	Power tools	<input type="radio"/>	<input type="radio"/>
	Grinding tools	<input type="radio"/>	<input type="radio"/>
	Hydraulic tools	<input type="radio"/>	<input type="radio"/>
	Gasoline-powered tools	<input type="radio"/>	<input type="radio"/>
	Precision tools	<input type="radio"/>	<input type="radio"/>
	Pneumatic tools	<input type="radio"/>	<input type="radio"/>
Use shop fabrication equipment	Use material handling equipment	<input type="radio"/>	<input type="radio"/>
	Use band saws, cut off saw	<input type="radio"/>	<input type="radio"/>
	Use drill presses	<input type="radio"/>	<input type="radio"/>
	Use ironworks	<input type="radio"/>	<input type="radio"/>
	Use brakes	<input type="radio"/>	<input type="radio"/>
	Use shears	<input type="radio"/>	<input type="radio"/>
	Use benders, power rolls	<input type="radio"/>	<input type="radio"/>
Use oxy-fuel processes	Set-up oxy-fuel equipment	<input type="radio"/>	<input type="radio"/>
	Operate oxy-fuel burning equipment	<input type="radio"/>	<input type="radio"/>
	Braze and weld using oxy-fuel systems	<input type="radio"/>	<input type="radio"/>
	Understand flame straightening techniques	<input type="radio"/>	<input type="radio"/>
Rigging	Use fibre ropes	<input type="radio"/>	<input type="radio"/>
	Use wire ropes	<input type="radio"/>	<input type="radio"/>
	Understand load mass (weighting) and centre of gravity	<input type="radio"/>	<input type="radio"/>
	Understand rigging communication	<input type="radio"/>	<input type="radio"/>
	Use tuggers and hoists	<input type="radio"/>	<input type="radio"/>
	Use cranes and boom trucks	<input type="radio"/>	<input type="radio"/>



Notes Notes Notes Notes Notes Notes Notes Notes Notes

MAJOR SKILLS		Can do	Cannot do
Blueprint reading	Interpret drawing plans and specifications	<input type="radio"/>	<input type="radio"/>
	Follow list of materials on drawings	<input type="radio"/>	<input type="radio"/>
Welding processes	Identify welding joint symbols	<input type="radio"/>	<input type="radio"/>
	Identify welding equipment	<input type="radio"/>	<input type="radio"/>
	Identify welding consumables	<input type="radio"/>	<input type="radio"/>
	Apply welding procedures	<input type="radio"/>	<input type="radio"/>
Apply fitting techniques	Use jigs	<input type="radio"/>	<input type="radio"/>
	Use plate fitting techniques	<input type="radio"/>	<input type="radio"/>
	Use distortion control	<input type="radio"/>	<input type="radio"/>
	Install fitting	<input type="radio"/>	<input type="radio"/>
	Apply bolt-up techniques	<input type="radio"/>	<input type="radio"/>
	Perform testing techniques	<input type="radio"/>	<input type="radio"/>
Apply tube expansion techniques	Describe tube expansion procedure	<input type="radio"/>	<input type="radio"/>
	Use tube removal, installation and expansion tools	<input type="radio"/>	<input type="radio"/>
	Apply test procedures	<input type="radio"/>	<input type="radio"/>
Apply layout techniques	Use layout tools (tapes, dividers, chalk lines, etc.)	<input type="radio"/>	<input type="radio"/>
	Use triangulation (how to square a plate)	<input type="radio"/>	<input type="radio"/>
	Develop templates (parallel line, radial line, triangulation)	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Bricklayer** (NOC: 7281)

DESCRIPTION: Bricklayers lay bricks, concrete blocks, stone and other similar materials to construct or repair walls, arches, chimneys, fireplaces and other structures in accordance with blueprints and specifications. They work on commercial, residential and industrial applications.

OTHER TITLES: Brick Mason, Refractory Bricklayer, Stonecutter, Mason, Stonemason

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Concrete Finisher, Drywall Finisher

MAJOR SKILLS		Can do	Cannot do
Drawings and reference materials	Read residential and commercial drawings	<input type="radio"/>	<input type="radio"/>
	Identify specific information from the <i>Building Code</i>	<input type="radio"/>	<input type="radio"/>
	Estimate material quantities and identify construction details	<input type="radio"/>	<input type="radio"/>
	Identify required permits and inspections	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools, cutting tools, edge-cutting tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain masonry saw	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools	<input type="radio"/>	<input type="radio"/>
Build fireplaces and chimneys	Select types of materials	<input type="radio"/>	<input type="radio"/>
	Lay out projects	<input type="radio"/>	<input type="radio"/>
	Select, use and install fireplace components	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Use scaffolds and ladders	<input type="radio"/>	<input type="radio"/>
	Use fibre ropes, tie knots, bends and hitches	<input type="radio"/>	<input type="radio"/>
	Use hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Use visual and audio signals when lifting	<input type="radio"/>	<input type="radio"/>
	Construct and use specific scaffolds	<input type="radio"/>	<input type="radio"/>
	Calculate load weights	<input type="radio"/>	<input type="radio"/>
Build ornamental masonry	Build arches	<input type="radio"/>	<input type="radio"/>
	Build corbels	<input type="radio"/>	<input type="radio"/>
	Install copings and caps	<input type="radio"/>	<input type="radio"/>
	Install cultured masonry, sculptured masonry, terracotta	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install acid proof work	Know about types of acid proof materials	<input type="radio"/>	<input type="radio"/>
	Lay out acid proof projects	<input type="radio"/>	<input type="radio"/>
	Select tools and equipment	<input type="radio"/>	<input type="radio"/>
	Select acid proof materials	<input type="radio"/>	<input type="radio"/>
	Select and install acid proof system	<input type="radio"/>	<input type="radio"/>
Install brick	Select tools and equipment	<input type="radio"/>	<input type="radio"/>
	Select brick and materials	<input type="radio"/>	<input type="radio"/>
	Clean and seal surface	<input type="radio"/>	<input type="radio"/>
	Lay out brick project	<input type="radio"/>	<input type="radio"/>
	Lay brick and tool joints	<input type="radio"/>	<input type="radio"/>
Concrete block	Select tools and equipment	<input type="radio"/>	<input type="radio"/>
	Select concrete block and materials	<input type="radio"/>	<input type="radio"/>
	Lay out concrete block project	<input type="radio"/>	<input type="radio"/>
	Lay concrete block and tool joints	<input type="radio"/>	<input type="radio"/>
Glass block	Install connectors and reinforcing	<input type="radio"/>	<input type="radio"/>
	Install expansion strips and caulking	<input type="radio"/>	<input type="radio"/>
	Lay glass block, apply mortar and grout	<input type="radio"/>	<input type="radio"/>
Insulation and barrier	Select materials for insulation and barrier	<input type="radio"/>	<input type="radio"/>
	Prepare substratum	<input type="radio"/>	<input type="radio"/>
	Apply barrier	<input type="radio"/>	<input type="radio"/>
	Apply insulation	<input type="radio"/>	<input type="radio"/>
Masonry connectors	Select and use anchor connectors	<input type="radio"/>	<input type="radio"/>
	Identify types of connectors	<input type="radio"/>	<input type="radio"/>
Install pavers	Identify types of pavers	<input type="radio"/>	<input type="radio"/>
	Select tools and equipment	<input type="radio"/>	<input type="radio"/>
	Prepare surface, layout project	<input type="radio"/>	<input type="radio"/>
	Select materials, clean and seal, install pavers	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Refractory	Identify types of refractory materials	<input type="radio"/>	<input type="radio"/>
	Lay out refractory project	<input type="radio"/>	<input type="radio"/>
	Select refractory system, install	<input type="radio"/>	<input type="radio"/>
Stone	Identify types of materials	<input type="radio"/>	<input type="radio"/>
	Select materials, anchoring system	<input type="radio"/>	<input type="radio"/>
	Lay out project, place/set stone	<input type="radio"/>	<input type="radio"/>
Perform restoration work	Identify problem and determine corrective action required	<input type="radio"/>	<input type="radio"/>
	Identify existing materials and conditions	<input type="radio"/>	<input type="radio"/>
	Select materials and use new when required	<input type="radio"/>	<input type="radio"/>
	Apply corrective action	<input type="radio"/>	<input type="radio"/>
Mortar application	Identify types of mortar	<input type="radio"/>	<input type="radio"/>
	Select materials for mortar mix, apply mortar, test mortar	<input type="radio"/>	<input type="radio"/>
	Operate mortar and grout pumps	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Carpenter** (NOC: 7271)

DESCRIPTION: Carpenters construct, erect, install, maintain and repair structures and components of structures made of wood, wood substitutes and other materials. They work on commercial, residential and industrial applications and are an essential trade in the construction sector.

OTHER TITLES: Finish Carpenter, Maintenance Carpenter, Renovation Carpenter, Rough Carpenter

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Cabinet Maker, Joinery/Benchwork

MAJOR SKILLS		Can do	Cannot do
Planning and use of drawings	Read residential and commercial drawings	<input type="radio"/>	<input type="radio"/>
	Identify specific information from the <i>Building Code</i>	<input type="radio"/>	<input type="radio"/>
	Estimate material quantities and identify construction details	<input type="radio"/>	<input type="radio"/>
	Identify required permits and inspections	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details and concrete form details	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain, cutting tools, edge cutting tools, drilling and boring tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain fastening tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools, powder-actuated tools	<input type="radio"/>	<input type="radio"/>
	Use concrete drilling, chipping and grinding tools	<input type="radio"/>	<input type="radio"/>
Identify materials	Know characteristics of wood	<input type="radio"/>	<input type="radio"/>
	Select framing and finish lumber, panel products	<input type="radio"/>	<input type="radio"/>
	Select and use fasteners, adhesives and caulking compounds	<input type="radio"/>	<input type="radio"/>
	Select and use finish and framing hardware	<input type="radio"/>	<input type="radio"/>
	Know types of concrete, materials, adhesives and treatments	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Calculate quantities of concrete	<input type="radio"/>	<input type="radio"/>
	Use scaffolds and ladders	<input type="radio"/>	<input type="radio"/>
	Use fibre ropes, tie knots, bends and hitches	<input type="radio"/>	<input type="radio"/>
	Use hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Use visual and audio signals when lifting	<input type="radio"/>	<input type="radio"/>
Shop equipment	Construct and use specific scaffolds and swing stages	<input type="radio"/>	<input type="radio"/>
	Use and maintain table saw, radial arm saw, band saw, panel saw	<input type="radio"/>	<input type="radio"/>
	Use and maintain drill press, jointer, thickness planer, sanding machine, shaper	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Site layout	Use optical levels, electronic instruments	<input type="radio"/>	<input type="radio"/>
	Identify site conditions	<input type="radio"/>	<input type="radio"/>
	Lay out building locations	<input type="radio"/>	<input type="radio"/>
	Build batter boards, set lines and square corners	<input type="radio"/>	<input type="radio"/>
	Use and know about drainage systems	<input type="radio"/>	<input type="radio"/>
Concrete formwork	Build forms for footings, walls, stairs	<input type="radio"/>	<input type="radio"/>
	Build forms for suspended slab and slab on grade	<input type="radio"/>	<input type="radio"/>
	Use methods of placing, finishing and curing concrete	<input type="radio"/>	<input type="radio"/>
	Place embedded metal devices, frames, dock levellers in concrete	<input type="radio"/>	<input type="radio"/>
	Use stripping techniques on concrete formwork	<input type="radio"/>	<input type="radio"/>
Residential housing	Use pre-stressed concrete and know why it's used	<input type="radio"/>	<input type="radio"/>
	Explain types of wood frame construction	<input type="radio"/>	<input type="radio"/>
	Build foundations, floors, walls and partitions	<input type="radio"/>	<input type="radio"/>
	Know about types of roofs, gable with ceiling joists, hip roofs, intersecting, unequal pitch intersecting	<input type="radio"/>	<input type="radio"/>
	Know types of stairs, straight, stair with landing, winder, circular	<input type="radio"/>	<input type="radio"/>
Finishing materials	Apply roofing materials	<input type="radio"/>	<input type="radio"/>
	Install doors and windows	<input type="radio"/>	<input type="radio"/>
	Apply exterior finishes	<input type="radio"/>	<input type="radio"/>
	Apply wall finishes and trim	<input type="radio"/>	<input type="radio"/>
	Install suspended ceilings and movable partitions	<input type="radio"/>	<input type="radio"/>
Insulation, energy conservation barriers	Build cabinets and apply plastic laminates	<input type="radio"/>	<input type="radio"/>
	Use insulation materials and air and vapour barriers	<input type="radio"/>	<input type="radio"/>
	Use energy conservation construction methods	<input type="radio"/>	<input type="radio"/>
Special construction features	Build special framing	<input type="radio"/>	<input type="radio"/>
	Use treated wood and preserved wood foundations	<input type="radio"/>	<input type="radio"/>
	Use heavy timbers construction	<input type="radio"/>	<input type="radio"/>
	Use pile foundations and shoring	<input type="radio"/>	<input type="radio"/>
	Install steel-stud framing and wallboard	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: Concrete Finisher (NOC: 7282)

DESCRIPTION: Concrete Finishers smooth and finish freshly poured concrete, apply curing or surface treatments and install, maintain and restore various masonry structures such as floors, ceilings, sidewalks, patios and roads.

OTHER TITLES: Cement Mason, Concrete Mason, Precast Concrete Finisher

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Mason, Bricklayer, Stonemason

MAJOR SKILLS		Can do	Cannot do
Planning and use of drawings	Read residential and commercial drawings	<input type="radio"/>	<input type="radio"/>
	Identify specific information from the <i>Building Code</i>	<input type="radio"/>	<input type="radio"/>
	Estimate material quantities and identify construction details	<input type="radio"/>	<input type="radio"/>
	Identify required permits and inspections	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details and concrete form details	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools, powder-actuated tools	<input type="radio"/>	<input type="radio"/>
	Use concrete drilling, chipping and grinding tools	<input type="radio"/>	<input type="radio"/>
Site preparation, place concrete	Carry out site inspection	<input type="radio"/>	<input type="radio"/>
	Prepare formwork	<input type="radio"/>	<input type="radio"/>
	Prepare for concrete placement	<input type="radio"/>	<input type="radio"/>
	Place concrete	<input type="radio"/>	<input type="radio"/>
	Use of different types of concrete, materials, adhesives and treatments	<input type="radio"/>	<input type="radio"/>
	Calculate quantities of concrete	<input type="radio"/>	<input type="radio"/>
Concrete finishing	Estimate time required for concrete to set	<input type="radio"/>	<input type="radio"/>
	Float concrete	<input type="radio"/>	<input type="radio"/>
	Finish all edges and joints	<input type="radio"/>	<input type="radio"/>
	Trowel concrete	<input type="radio"/>	<input type="radio"/>
	Apply curing system	<input type="radio"/>	<input type="radio"/>
Concrete curing and protection	Use protection system for concrete	<input type="radio"/>	<input type="radio"/>
	Install protection for concrete	<input type="radio"/>	<input type="radio"/>
	Use stripping techniques on concrete forms	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Jointing	Make and install control joints	<input type="radio"/>	<input type="radio"/>
	Clean and fill joints	<input type="radio"/>	<input type="radio"/>
	Use and knowledge of drainage systems	<input type="radio"/>	<input type="radio"/>
Restoration work, correct, repair and modify	Conduct inspection for all defects	<input type="radio"/>	<input type="radio"/>
	Perform repairs	<input type="radio"/>	<input type="radio"/>
	Use methods of placing, finishing and curing concrete on repairs	<input type="radio"/>	<input type="radio"/>
	Repair concrete	<input type="radio"/>	<input type="radio"/>
	Cut and core concrete	<input type="radio"/>	<input type="radio"/>
Specialty concrete	Use specialty concrete installations	<input type="radio"/>	<input type="radio"/>
	Install specialty concrete	<input type="radio"/>	<input type="radio"/>
	Install high tolerance floors	<input type="radio"/>	<input type="radio"/>
	Install grouts	<input type="radio"/>	<input type="radio"/>
Architectural finishes	Apply architectural finishes	<input type="radio"/>	<input type="radio"/>
	Use texturing techniques	<input type="radio"/>	<input type="radio"/>
	Apply texturing techniques	<input type="radio"/>	<input type="radio"/>
Material handling equipment	Know about types of equipment to move concrete	<input type="radio"/>	<input type="radio"/>
	Operate material handling equipment	<input type="radio"/>	<input type="radio"/>
Install concrete grouting	Use concrete grouting	<input type="radio"/>	<input type="radio"/>
	Install concrete grouting	<input type="radio"/>	<input type="radio"/>
Install acid proof work	Use acid proof work	<input type="radio"/>	<input type="radio"/>
	Install acid proof work	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Construction Electrician** (NOC: 7241)

DESCRIPTION: Construction Electricians work in a wide variety of residential, commercial and industrial construction buildings and facilities projects, on everything from lighting and climate control systems to communication equipment. They use many specific tools and devices. A Construction Electrician's work involves assembling, installing, commissioning, testing, maintaining, servicing and operating electrical systems and equipment.

OTHER TITLES: Electrical Construction, Electrician, Electrician (Construction), Electrician – Construction and Maintenance

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Industrial Instrument Mechanic, Industrial Electrician

MAJOR SKILLS		Can do	Cannot do
Test equipment	Measure current, resistance, voltage, and power and energy with meters	<input type="radio"/>	<input type="radio"/>
Conductors and raceways	Install conductors	<input type="radio"/>	<input type="radio"/>
	Install raceways	<input type="radio"/>	<input type="radio"/>
	Extract electrical information from construction drawings	<input type="radio"/>	<input type="radio"/>
Transformers and protective equipment	Install and connect single and three-phase transformers	<input type="radio"/>	<input type="radio"/>
	Install and connect instrument transformers	<input type="radio"/>	<input type="radio"/>
DC machines and controls	Install and connect DC generators	<input type="radio"/>	<input type="radio"/>
	Install and connect DC motors and motor controllers	<input type="radio"/>	<input type="radio"/>
AC motors and motor controls	Install and operate single-phase motors	<input type="radio"/>	<input type="radio"/>
	Connect and operate three-phase motors	<input type="radio"/>	<input type="radio"/>
	Connect and operate manual and magnetic motor starters	<input type="radio"/>	<input type="radio"/>
	Install and operate pilot and auxiliary motor control devices	<input type="radio"/>	<input type="radio"/>
Lighting circuits	Install and operate incandescent, fluorescent and high intensity lighting	<input type="radio"/>	<input type="radio"/>
	Discharge high intensity discharge (HID) lighting circuits	<input type="radio"/>	<input type="radio"/>
	Install and operate emergency lighting equipment	<input type="radio"/>	<input type="radio"/>
Emergency power systems	Install and operate automatic transfer switches	<input type="radio"/>	<input type="radio"/>
	Install standby power generating systems	<input type="radio"/>	<input type="radio"/>
	Install uninterruptible power supply systems (UPS)	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Programmable logic controllers and automatic control systems	Install and maintain programmable logic controllers (PLC)	<input type="radio"/>	<input type="radio"/>
	Install input/output field devices	<input type="radio"/>	<input type="radio"/>
	Install control system protective devices	<input type="radio"/>	<input type="radio"/>
Power distribution and system controls	Install services	<input type="radio"/>	<input type="radio"/>
	Install and terminate cables	<input type="radio"/>	<input type="radio"/>
	Install high voltage (1,000 volts and more) power distribution systems	<input type="radio"/>	<input type="radio"/>
	Install low voltage (300 volts and less) power distribution systems	<input type="radio"/>	<input type="radio"/>
	Install and operate alternators	<input type="radio"/>	<input type="radio"/>
	Install electrical components of heating and cooling systems	<input type="radio"/>	<input type="radio"/>
	Install building automation systems	<input type="radio"/>	<input type="radio"/>
	Install and test fire alarm system	<input type="radio"/>	<input type="radio"/>
Solid state devices and computers	Install and operate common computer programs	<input type="radio"/>	<input type="radio"/>
	Install circuit protection devices	<input type="radio"/>	<input type="radio"/>
	Install and maintain solid state devices	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: Floor Covering Installer (NOC: 7295)

DESCRIPTION: A Floor Covering Installer is a skilled worker who installs carpets, wood, linoleum, vinyl, and other resilient floor coverings in commercial, residential, institutional and industrial buildings.

OTHER TITLES: Carpet Installer, Carpet Layer, Floor Covering Mechanic, Resilient Floor Installer, Rug Installer, Vinyl Floor Installer

MAJOR SKILLS		Can do	Cannot do
Planning and drawing	Read residential and commercial drawings	<input type="radio"/>	<input type="radio"/>
	Estimate material quantities and identify construction details	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools	<input type="radio"/>	<input type="radio"/>
Prepare sub-floors	Identify sub-floor types	<input type="radio"/>	<input type="radio"/>
	Identify underpayment panels	<input type="radio"/>	<input type="radio"/>
	Perform and meet moisture test requirements	<input type="radio"/>	<input type="radio"/>
	Apply patching and levelling compounds	<input type="radio"/>	<input type="radio"/>
	Rectify contaminated sub-floors	<input type="radio"/>	<input type="radio"/>
	Remove existing floor covering	<input type="radio"/>	<input type="radio"/>
	Perform preparation procedures for specialty sub-floors	<input type="radio"/>	<input type="radio"/>
Carpet products	Interpret field test results	<input type="radio"/>	<input type="radio"/>
	Use trims and edge finishes	<input type="radio"/>	<input type="radio"/>
	Know about tackless strips	<input type="radio"/>	<input type="radio"/>
	Know carpet cushion types	<input type="radio"/>	<input type="radio"/>
	Know types of carpet construction	<input type="radio"/>	<input type="radio"/>
	Know types of carpet fibres	<input type="radio"/>	<input type="radio"/>
	Know types of adhesives and sealers	<input type="radio"/>	<input type="radio"/>
	Use hot-melt seaming tapes	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Identify resilient products	Correctly handle and store material	<input type="radio"/>	<input type="radio"/>
	Identify resilient sheet vinyls	<input type="radio"/>	<input type="radio"/>
	Identify resilient tiles	<input type="radio"/>	<input type="radio"/>
	Identify linoleum products	<input type="radio"/>	<input type="radio"/>
	Identify specialty resilient products	<input type="radio"/>	<input type="radio"/>
	Identify resilient floor adhesives and sealers	<input type="radio"/>	<input type="radio"/>
	Identify baseboard materials	<input type="radio"/>	<input type="radio"/>
	Identify resilient stair components	<input type="radio"/>	<input type="radio"/>
	Identify trims and finishes	<input type="radio"/>	<input type="radio"/>
Install carpet, conventional method	Install tackless strip, edge trims, carpet cushion	<input type="radio"/>	<input type="radio"/>
	Determine carpet seam placement, install seam carpet	<input type="radio"/>	<input type="radio"/>
	Install tufted construction carpet	<input type="radio"/>	<input type="radio"/>
	Install woven carpet	<input type="radio"/>	<input type="radio"/>
	Install patterned carpet	<input type="radio"/>	<input type="radio"/>
	Install carpet with borders and insets	<input type="radio"/>	<input type="radio"/>
	Install carpet to stairs by conventional methods	<input type="radio"/>	<input type="radio"/>
	Perform specialized work	<input type="radio"/>	<input type="radio"/>
Install carpet, glue-down method	Select adhesives	<input type="radio"/>	<input type="radio"/>
	Lay out and prepare seams	<input type="radio"/>	<input type="radio"/>
	Apply adhesives	<input type="radio"/>	<input type="radio"/>
	Fit and finish carpet	<input type="radio"/>	<input type="radio"/>
	Install carpet with borders and insets	<input type="radio"/>	<input type="radio"/>
	Install carpet to stairs, walls	<input type="radio"/>	<input type="radio"/>
	Perform a double-bond carpet installation	<input type="radio"/>	<input type="radio"/>
	Repair glue-down carpet	<input type="radio"/>	<input type="radio"/>
	Install carpet tiles	<input type="radio"/>	<input type="radio"/>
Install resilient tile	Prepare sub-floor for resilient tile	<input type="radio"/>	<input type="radio"/>
	Do layout and grid lines	<input type="radio"/>	<input type="radio"/>
	Select adhesives	<input type="radio"/>	<input type="radio"/>
	Place tiles	<input type="radio"/>	<input type="radio"/>
	Scribe and fit resilient tiles	<input type="radio"/>	<input type="radio"/>
	Insert resilient tiles on stairs	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install resilient sheets	Prepare sub-floor for resilient sheets	<input type="radio"/>	<input type="radio"/>
	Fit the resilient sheet flooring using freehand method	<input type="radio"/>	<input type="radio"/>
	Install resilient sheet flooring using flat-lay method	<input type="radio"/>	<input type="radio"/>
	Apply scribe-fitting techniques	<input type="radio"/>	<input type="radio"/>
	Apply seam techniques	<input type="radio"/>	<input type="radio"/>
	Match patterns	<input type="radio"/>	<input type="radio"/>
	Install flash coving, borders and insets	<input type="radio"/>	<input type="radio"/>
	Install resilient tension floors	<input type="radio"/>	<input type="radio"/>
	Install resilient sheet flooring to stairs	<input type="radio"/>	<input type="radio"/>
	Repair resilient sheet installations	<input type="radio"/>	<input type="radio"/>
	Perform seam welding procedures	<input type="radio"/>	<input type="radio"/>
Install specialty resilient products	Install moulded stair products	<input type="radio"/>	<input type="radio"/>
	Install safety floors	<input type="radio"/>	<input type="radio"/>
	Install rubber floor products	<input type="radio"/>	<input type="radio"/>
	Install asphalt plank flooring	<input type="radio"/>	<input type="radio"/>
	Install resilient wall coverings	<input type="radio"/>	<input type="radio"/>
	Install conductive floors	<input type="radio"/>	<input type="radio"/>
Install pre-finished hardwood and laminate floors	Determine sub-floor requirements for hardwood and laminate floors	<input type="radio"/>	<input type="radio"/>
	Able to do layout and measurement procedures	<input type="radio"/>	<input type="radio"/>
	Glue and clamp hardwood and laminate floors	<input type="radio"/>	<input type="radio"/>
	Repair hardwood and laminate floors	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Glazier

 (NOC: 7292)

DESCRIPTION: Glaziers cut, fit, install and replace glass in residential, commercial and industrial buildings, on exterior walls of buildings and other structures, and in furniture and other products.

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Glazier and Metal Mechanic, Plate Glass Installer, Structural Glass Installer, Stained Glass Glazier, Automotive Glazier

MAJOR SKILLS		Can do	Cannot do
Tools and equipment	Identify shop tools	<input type="radio"/>	<input type="radio"/>
	Operate power-activated tools	<input type="radio"/>	<input type="radio"/>
	Sharpen drill bits	<input type="radio"/>	<input type="radio"/>
	Use power tools	<input type="radio"/>	<input type="radio"/>
	Use metal fabrication tools	<input type="radio"/>	<input type="radio"/>
	Use glass-cutting tools	<input type="radio"/>	<input type="radio"/>
	Use hand and power cups	<input type="radio"/>	<input type="radio"/>
	Use level, transit and laser	<input type="radio"/>	<input type="radio"/>
Blueprint reading	Understand common symbols and abbreviations	<input type="radio"/>	<input type="radio"/>
	Read architectural and shop blueprints	<input type="radio"/>	<input type="radio"/>
	Use architectural scale rules	<input type="radio"/>	<input type="radio"/>
	Follow floor plans, sections, elevations and details	<input type="radio"/>	<input type="radio"/>
	Follow door and window schedules	<input type="radio"/>	<input type="radio"/>
	Use cutting lists	<input type="radio"/>	<input type="radio"/>
Handling glass	Make simple sketches and drawings	<input type="radio"/>	<input type="radio"/>
	Know the basic use of knots and splicing methods	<input type="radio"/>	<input type="radio"/>
	Experience in lifting glass and sealed units	<input type="radio"/>	<input type="radio"/>
	Familiar with crating and uncrating glass	<input type="radio"/>	<input type="radio"/>
	Familiar with slinging loads for lifting and hoisting	<input type="radio"/>	<input type="radio"/>
Cut glass mirrors	Cut plastics and acrylics	<input type="radio"/>	<input type="radio"/>
	Describe types of glass and glass products	<input type="radio"/>	<input type="radio"/>
	Familiar with glass properties and process	<input type="radio"/>	<input type="radio"/>
	Describe glass and mirror edge work	<input type="radio"/>	<input type="radio"/>
	Use cutting tables	<input type="radio"/>	<input type="radio"/>
	Cut glass and mirrors using cutting machines	<input type="radio"/>	<input type="radio"/>
	Drill and notch holes in glass mirrors	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Glazing systems and glass	Understand glazing systems	<input type="radio"/>	<input type="radio"/>
	Understand structural glazing	<input type="radio"/>	<input type="radio"/>
	Use formulas for measuring glazing systems	<input type="radio"/>	<input type="radio"/>
	Install auto glass	<input type="radio"/>	<input type="radio"/>
	Install curtain wall glazing	<input type="radio"/>	<input type="radio"/>
	Install door and vent windows	<input type="radio"/>	<input type="radio"/>
	Glaze putty frames, gasket systems, showcases	<input type="radio"/>	<input type="radio"/>
	Glaze store front	<input type="radio"/>	<input type="radio"/>
	Glazing of total vision	<input type="radio"/>	<input type="radio"/>
	Install suspended glazing	<input type="radio"/>	<input type="radio"/>
Caulking and sealants	Familiar with wind seals, wind load, and dead load	<input type="radio"/>	<input type="radio"/>
	Experienced in mixing three-part sealant	<input type="radio"/>	<input type="radio"/>
	Select correct types of shims	<input type="radio"/>	<input type="radio"/>
	Familiar with application of caulking and sealants	<input type="radio"/>	<input type="radio"/>
	Supply silicon glass systems	<input type="radio"/>	<input type="radio"/>
Metal and aluminium frames	Use spigots	<input type="radio"/>	<input type="radio"/>
	Determine material requirements	<input type="radio"/>	<input type="radio"/>
	Select appropriate fasteners	<input type="radio"/>	<input type="radio"/>
	Drill and tap	<input type="radio"/>	<input type="radio"/>
	Familiar with cutting various metals including aluminium	<input type="radio"/>	<input type="radio"/>
	Install frames and hardware	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Heavy-Duty Equipment Mechanic

 (NOC: 7312)

DESCRIPTION: Heavy-Duty Equipment Mechanics repair, troubleshoot, adjust, overhaul and maintain mobile heavy-duty equipment used in construction, transportation, forestry, mining, oil and gas, material handling, landscaping, land clearing, farming and similar activities.

OTHER TITLES: Construction Equipment Mechanic, Diesel Mechanic, Farm Equipment Mechanic, Heavy-Duty Equipment Technician, Heavy Equipment Mechanic, Heavy Mobile Logging Equipment Mechanic, Locomotive Mechanic, Tractor Mechanic

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Marine Diesel Engine Mechanic, Diesel Engine Mechanic, Commercial Transport Mechanic, Fuel-Injection Mechanic

MAJOR SKILLS		Can do	Cannot do
Manuals and documentation	Store and transfer electronic data	<input type="radio"/>	<input type="radio"/>
	Access information using printed material, manuals	<input type="radio"/>	<input type="radio"/>
	Use and follow diagnostic and troubleshooting flow charts	<input type="radio"/>	<input type="radio"/>
	Interpret drawings and specifications	<input type="radio"/>	<input type="radio"/>
	Use documentation for work orders, warranties, service records	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use mechanic's hand tools, power metal working tools	<input type="radio"/>	<input type="radio"/>
	Use shop cleaning tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and testing devices, e.g., gauges, meters, precision tools	<input type="radio"/>	<input type="radio"/>
	Use shop tools, air-operated tools, hydraulic press	<input type="radio"/>	<input type="radio"/>
Welding practices	Use oxy-acetylene equipment for cutting and welding	<input type="radio"/>	<input type="radio"/>
	Assemble, test, light, adjust, shut down, disassemble oxy-acetylene equipment	<input type="radio"/>	<input type="radio"/>
	Use arc welding equipment on ferrous metals	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Select, use, attach rigging equipment	<input type="radio"/>	<input type="radio"/>
	Know and use hand signals	<input type="radio"/>	<input type="radio"/>
	Block and crib components and equipment	<input type="radio"/>	<input type="radio"/>
	Use jacks	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Hydraulic systems	Service pumps and motors, valves, cylinders and seals	<input type="radio"/>	<input type="radio"/>
	Service hydraulic system heat exchangers and accumulators	<input type="radio"/>	<input type="radio"/>
	Service, analyze, troubleshoot advanced hydraulic systems	<input type="radio"/>	<input type="radio"/>
	Service hydraulic braking system components	<input type="radio"/>	<input type="radio"/>
	Perform preventive maintenance on hydraulic braking systems	<input type="radio"/>	<input type="radio"/>
	Troubleshoot hydraulic braking systems	<input type="radio"/>	<input type="radio"/>
Pneumatic systems	Service industrial air compressors	<input type="radio"/>	<input type="radio"/>
	Service air starting systems, air-operated controls, accessories, air dryers	<input type="radio"/>	<input type="radio"/>
	Service air brake systems and components	<input type="radio"/>	<input type="radio"/>
	Perform preventive maintenance on air brake systems	<input type="radio"/>	<input type="radio"/>
	Troubleshoot air brake systems	<input type="radio"/>	<input type="radio"/>
Engines and engine support systems	Remove, disassemble, store and reinstall diesel engine	<input type="radio"/>	<input type="radio"/>
	Service all diesel engine components	<input type="radio"/>	<input type="radio"/>
	Install fuel system components and perform cold tune-up	<input type="radio"/>	<input type="radio"/>
	Perform pre-start and operating checks and engine tune-up	<input type="radio"/>	<input type="radio"/>
	Service cooling, lubrication, air induction, exhaust and electrical/electronic sentinel systems	<input type="radio"/>	<input type="radio"/>
	Remove, disassemble, recondition, assemble, install all types of fuel systems and components	<input type="radio"/>	<input type="radio"/>
Drive train	Service clutches, single plate, double plate, linkage mechanisms and flywheels	<input type="radio"/>	<input type="radio"/>
	Service torque converters, fluid couplings and retarder components	<input type="radio"/>	<input type="radio"/>
	Service automatic transmissions, power shift transmissions	<input type="radio"/>	<input type="radio"/>
	Remove, disassemble, recondition, assemble, install driveline, bearings and seals	<input type="radio"/>	<input type="radio"/>
	Service standard and auxiliary transmissions	<input type="radio"/>	<input type="radio"/>
Steering and suspension	Remove, disassemble, recondition, assemble, install power-steering and components	<input type="radio"/>	<input type="radio"/>
	Perform preventative maintenance on power-steering systems	<input type="radio"/>	<input type="radio"/>
	Service track-type machine final drives, steering, undercarriages and working attachments	<input type="radio"/>	<input type="radio"/>
	Service wheel machine front spring suspension systems, steering and working attachments	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Electrical, electronic systems	Remove, disassemble, replace or recondition, assemble, install electrical systems and components	<input type="radio"/>	<input type="radio"/>
	Repair or replace electrical wire harnesses	<input type="radio"/>	<input type="radio"/>
	Remove, install, replace electronic systems components	<input type="radio"/>	<input type="radio"/>
	Program new electronic system components	<input type="radio"/>	<input type="radio"/>
	Perform calibration/adjustment procedures	<input type="radio"/>	<input type="radio"/>
Climate controls, accessories	Service and repair heating systems and components	<input type="radio"/>	<input type="radio"/>
	Service and repair ventilation systems and components	<input type="radio"/>	<input type="radio"/>
	Service and repair air conditioning systems and components	<input type="radio"/>	<input type="radio"/>
	Remove, disassemble, replace or recondition, assemble, install structural components, attachments and accessories	<input type="radio"/>	<input type="radio"/>
	Remove, repair or replace all operator cab components	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Industrial Instrument Technician/Mechanic

 (NOC: 2243)

DESCRIPTION: industrial Instrument Technicians and Mechanics install, repair, maintain, and adjust instruments used to measure and control industrial processes such as pulp and paper manufacturing and petrochemical production. These types of instruments are typically used for controlling factors such as the following:

- flow of gases or liquids,
- temperature of materials or stages of a process,
- pressure maintained during a process, and
- level of a material used or created during a process.

OTHER TITLES: Industrial Instrumentation, Instrument Mechanic, Instrumentation and Control Technician

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Industrial Electrician, Construction Electrician, Electronic Communication Technician

MAJOR SKILLS		Can do	Cannot do
DC electricity	Use measuring devices and troubleshoot DC circuits	<input type="radio"/>	<input type="radio"/>
	Assemble series and parallel circuits	<input type="radio"/>	<input type="radio"/>
	Assemble combination DC circuits	<input type="radio"/>	<input type="radio"/>
AC electricity, electronic equipment and wiring installation	Assemble and troubleshoot ladder logic circuits	<input type="radio"/>	<input type="radio"/>
	Use AC measuring devices and test equipment	<input type="radio"/>	<input type="radio"/>
	Assemble and test basic electronic circuits	<input type="radio"/>	<input type="radio"/>
	Install cabling including fibre optical cabling	<input type="radio"/>	<input type="radio"/>
	Install field devices	<input type="radio"/>	<input type="radio"/>
Tubing, fittings and air supply	Bend and install tubing and fittings	<input type="radio"/>	<input type="radio"/>
	Pressure-test installation	<input type="radio"/>	<input type="radio"/>
	Service, test and troubleshoot air systems	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Measurement: pressure, level, temperature, flow, density, consistency, viscosity, weight, vibration speed	Use pressure test equipment	<input type="radio"/>	<input type="radio"/>
	Repair and calibrate pressure devices	<input type="radio"/>	<input type="radio"/>
	Install pressure gauges and transmitters	<input type="radio"/>	<input type="radio"/>
	Install, repair and calibrate level measuring devices	<input type="radio"/>	<input type="radio"/>
	Install, repair and calibrate temperature measuring devices	<input type="radio"/>	<input type="radio"/>
	Install, repair and calibrate flow meters	<input type="radio"/>	<input type="radio"/>
	Install density measuring devices	<input type="radio"/>	<input type="radio"/>
	Repair and calibrate density meters	<input type="radio"/>	<input type="radio"/>
	Repair and calibrate consistency meters	<input type="radio"/>	<input type="radio"/>
	Install consistency measuring devices	<input type="radio"/>	<input type="radio"/>
	Install, repair and calibrate weight measuring devices	<input type="radio"/>	<input type="radio"/>
	Measure vibration and speed	<input type="radio"/>	<input type="radio"/>
Process gases	Measure: H ₂ S, CO, CO ₂ , O ₂ and combustibles	<input type="radio"/>	<input type="radio"/>
	Use gas chromatograph	<input type="radio"/>	<input type="radio"/>
Environmental protection devices	Install, repair and calibrate indicators and recorders	<input type="radio"/>	<input type="radio"/>
	Measure: Ph, ORP and specific ion, conductivity, stack gases	<input type="radio"/>	<input type="radio"/>
Signal conditioners, digital electronics, computers	Install, calibrate, troubleshoot and repair signal conditioners	<input type="radio"/>	<input type="radio"/>
	Test digital circuits	<input type="radio"/>	<input type="radio"/>
	Program and troubleshoot programmable logic controllers (PLC)	<input type="radio"/>	<input type="radio"/>
Regulators and relief valves controllers	Install and maintain regulators and relief valves	<input type="radio"/>	<input type="radio"/>
	Repair self-actuating temperature controllers	<input type="radio"/>	<input type="radio"/>
	Install, repair and maintain pneumatic controllers	<input type="radio"/>	<input type="radio"/>
	Install, repair and maintain electronic controllers	<input type="radio"/>	<input type="radio"/>
	Read and make loop diagram	<input type="radio"/>	<input type="radio"/>
Final control elements	Repair and maintain control valves	<input type="radio"/>	<input type="radio"/>
	Repair and maintain actuators	<input type="radio"/>	<input type="radio"/>
	Repair and setup valve positioners	<input type="radio"/>	<input type="radio"/>
	Select and maintain solenoid valves	<input type="radio"/>	<input type="radio"/>
Process control	Tune control loops	<input type="radio"/>	<input type="radio"/>
	Troubleshoot process loops	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Insulator (Heat and Frost)** (NOC: 7293)

DESCRIPTION: Heat and Frost Insulators cover exposed surfaces of pipes, steam generators, ducts, process vats and related equipment using a variety of insulating materials. The materials can not only reduce the transfer of heat and cold from plumbing, heating, cooling and refrigeration systems, they also reduce noise and a chance of fire. Heat and Frost Insulators work on a wide variety of commercial and industrial sites.

MAJOR SKILLS		Can do	Cannot do
Planning and drawings	Read blueprints and specifications	<input type="radio"/>	<input type="radio"/>
	Read and interpret technical drawings and manuals	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
	Use scale rulers	<input type="radio"/>	<input type="radio"/>
	Develop layout for fittings	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand and power tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain cutting tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain fastening tools	<input type="radio"/>	<input type="radio"/>
	Use portable pin welding machines	<input type="radio"/>	<input type="radio"/>
	Use sheet metal tools and equipment	<input type="radio"/>	<input type="radio"/>
Rigging, ladders and scaffolds	Use and maintain ladders and boatswain chairs	<input type="radio"/>	<input type="radio"/>
	Use and maintain scaffolding	<input type="radio"/>	<input type="radio"/>
	Use approved visual hand signals	<input type="radio"/>	<input type="radio"/>
	Use and maintain life lines and safety belts	<input type="radio"/>	<input type="radio"/>
	Use fibre ropes, knots, bends and hitches	<input type="radio"/>	<input type="radio"/>
Apply adhesives	Select appropriate adhesives	<input type="radio"/>	<input type="radio"/>
	Prepare surfaces for adhesive application	<input type="radio"/>	<input type="radio"/>
	Apply adhesives	<input type="radio"/>	<input type="radio"/>
	Use thinners and solvents for adhesives and materials	<input type="radio"/>	<input type="radio"/>
	Use temperature scale for adhesives	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Apply insulation	Apply caulking	<input type="radio"/>	<input type="radio"/>
	Apply metal and plastic jacketing	<input type="radio"/>	<input type="radio"/>
	Select jacketing	<input type="radio"/>	<input type="radio"/>
	Apply insulation to heat-traced systems	<input type="radio"/>	<input type="radio"/>
	Insulate HVAC (heating, ventilation and air con) systems	<input type="radio"/>	<input type="radio"/>
	Insulate mechanical systems	<input type="radio"/>	<input type="radio"/>
	Fabricate materials for insulation	<input type="radio"/>	<input type="radio"/>
	Make various insulation pads	<input type="radio"/>	<input type="radio"/>
	Spray application of sealers and coatings	<input type="radio"/>	<input type="radio"/>
	Carry out underground installation of insulation	<input type="radio"/>	<input type="radio"/>
	Use and maintain spray equipment	<input type="radio"/>	<input type="radio"/>
Asbestos abatement procedure	Perform maintenance repair of damaged area	<input type="radio"/>	<input type="radio"/>
	Remove asbestos in high risk conditions	<input type="radio"/>	<input type="radio"/>
	Use procedures for encapsulation or enclosure of asbestos materials	<input type="radio"/>	<input type="radio"/>
	Use personal protective equipment for asbestos abatement	<input type="radio"/>	<input type="radio"/>
Layout techniques	Develop patterns for elbows, various seams on metal covers	<input type="radio"/>	<input type="radio"/>
	Lay out tees and equipment	<input type="radio"/>	<input type="radio"/>
	Lay out various geometric shapes	<input type="radio"/>	<input type="radio"/>
	Use and develop isometric drawings	<input type="radio"/>	<input type="radio"/>
	Use lines, symbols, scales and dimensions	<input type="radio"/>	<input type="radio"/>
Fire stopping and smoke sealing techniques	Installation of fire stopping	<input type="radio"/>	<input type="radio"/>
	Calculate fire stopping applications	<input type="radio"/>	<input type="radio"/>
	Determine fire stopping and smoke sealing materials	<input type="radio"/>	<input type="radio"/>
Industrial application	Apply insulation of refractory applications (1,500EF+)	<input type="radio"/>	<input type="radio"/>
	Apply sealants	<input type="radio"/>	<input type="radio"/>
	Fabricate insulation for tanks, vessels and fittings	<input type="radio"/>	<input type="radio"/>
	Fabricate removable covers	<input type="radio"/>	<input type="radio"/>
	Install underground insulating systems	<input type="radio"/>	<input type="radio"/>
	Install insulation for thermal applications	<input type="radio"/>	<input type="radio"/>
	Install protective covers	<input type="radio"/>	<input type="radio"/>
	Insulate for fireproofing	<input type="radio"/>	<input type="radio"/>
	Insulate for soundproofing	<input type="radio"/>	<input type="radio"/>
	Insulate for cryogenic applications (-65oC to absolute zero)	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Lead abatement	Determine administrative requirement	<input type="radio"/>	<input type="radio"/>
	Perform lead abatement procedures	<input type="radio"/>	<input type="radio"/>
	Determine health effects	<input type="radio"/>	<input type="radio"/>
Types of insulation materials	Determine types and use of adhesives solvents and thinners	<input type="radio"/>	<input type="radio"/>
	Determine types and use of cements	<input type="radio"/>	<input type="radio"/>
	Determine types and use of insulation fasteners and reinforcing materials	<input type="radio"/>	<input type="radio"/>
	Determine types and use of loose-fill insulation materials	<input type="radio"/>	<input type="radio"/>
	Determine types and use of poured insulation materials	<input type="radio"/>	<input type="radio"/>
	Determine types and use of spray insulation materials	<input type="radio"/>	<input type="radio"/>
	Use types of tapes, vapour barriers and weatherproofing	<input type="radio"/>	<input type="radio"/>
	Use types of flexible and rigid insulation materials	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Ironworker (generalist)** (NOC: 7264)

DESCRIPTION: Ironworkers fabricate, erect, hoist, install, repair and service structural ironwork, pre-cast concrete, concrete reinforcing materials, curtain walls, ornamental iron and other metals used in the construction of buildings, bridges, highways, dams and other structures and equipment. Ironworker is designated as ironworker (generalist) under the Interprovincial Red Seal Program.

OTHER TITLES: Iron Worker, Ironworker, Metal Building Systems Erector, Reinforcing Ironworker, Structural Steel Erector

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Metal Fabrication, Welder, Ornamental Ironworker

MAJOR SKILLS		Can do	Cannot do
Tools	Select and use basic construction hand tools to measure and lay up	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools	<input type="radio"/>	<input type="radio"/>
	Use structural connectors and fasteners	<input type="radio"/>	<input type="radio"/>
	Use architectural fasteners	<input type="radio"/>	<input type="radio"/>
	Use level and transit	<input type="radio"/>	<input type="radio"/>
	Use concrete anchors	<input type="radio"/>	<input type="radio"/>
Metal fabrication power equipment	Use shop material handling and hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Use power shears	<input type="radio"/>	<input type="radio"/>
	Use power band saws	<input type="radio"/>	<input type="radio"/>
	Use power metal bending equipment	<input type="radio"/>	<input type="radio"/>
	Use a threading machine	<input type="radio"/>	<input type="radio"/>
Oxy-fuel cutting and fitting structural shapes	Identify proper procedures for operating oxy-fuel cutting and fitting equipment	<input type="radio"/>	<input type="radio"/>
	Cut, bevel and pierce various thickness of steel plate	<input type="radio"/>	<input type="radio"/>
	Fit structural shapes including angle-to-angle, channel-to-channel, and 45 and 90 degree pipe fit-ups	<input type="radio"/>	<input type="radio"/>
	Use oxy-fuel equipment to pre-heat, bend and straighten metals	<input type="radio"/>	<input type="radio"/>
	Use a portable cutting machine to cut a straight line and bevel on steel plate	<input type="radio"/>	<input type="radio"/>
	Use a plasma arc cutting machine to cut metal plate	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Shielded metal arc welding (SMAW)	Describe safe arc welding practices	<input type="radio"/>	<input type="radio"/>
	Identify SMAW process	<input type="radio"/>	<input type="radio"/>
	Identify types of welding machines and power sources	<input type="radio"/>	<input type="radio"/>
	Use various electrodes for SMAW	<input type="radio"/>	<input type="radio"/>
	Identify and correct weld faults, arc blow and distortions	<input type="radio"/>	<input type="radio"/>
	Interpret welding symbols	<input type="radio"/>	<input type="radio"/>
	Use arc carbon, arc cutting and gouging	<input type="radio"/>	<input type="radio"/>
	Perform SMAW	<input type="radio"/>	<input type="radio"/>
Apply rigging	Use fibre rope	<input type="radio"/>	<input type="radio"/>
	Use wire rope	<input type="radio"/>	<input type="radio"/>
	Use wire slings	<input type="radio"/>	<input type="radio"/>
	Describe and use different types and applications of rigging hardware	<input type="radio"/>	<input type="radio"/>
	Use mechanical and hydraulic jacks	<input type="radio"/>	<input type="radio"/>
	Use skids rollers, cribbing and blocking	<input type="radio"/>	<input type="radio"/>
	Use work platforms, staging and scaffolding	<input type="radio"/>	<input type="radio"/>
	Identify special lifting equipment	<input type="radio"/>	<input type="radio"/>
	Describe stake and deadhead anchors	<input type="radio"/>	<input type="radio"/>
	Demonstrate use of fibre and wire rope reeving	<input type="radio"/>	<input type="radio"/>
	Describe procedures for heavy rigging and marine rigging	<input type="radio"/>	<input type="radio"/>
	Demonstrate rigging calculations	<input type="radio"/>	<input type="radio"/>
Cranes, derricks and auxiliary hoisting equipment	Identify types of mobile and crawler cranes	<input type="radio"/>	<input type="radio"/>
	Identify types of climbing cranes	<input type="radio"/>	<input type="radio"/>
	Identify derrick types and their cableways	<input type="radio"/>	<input type="radio"/>
	Identify and operate auxiliary hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Identify non-visual hoisting signals and communication	<input type="radio"/>	<input type="radio"/>
	Demonstrate all hand signals	<input type="radio"/>	<input type="radio"/>
	Describe steel erection procedures for cranes, derricks and auxiliary hoisting operations	<input type="radio"/>	<input type="radio"/>
	Describe conveyance equipment	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Structural steel erection	Describe steel construction and erection	<input type="radio"/>	<input type="radio"/>
	Demonstrate application of shims and wedges	<input type="radio"/>	<input type="radio"/>
	Demonstrate maintenance and inspection of structures	<input type="radio"/>	<input type="radio"/>
	Describe field fabrication and revision to repairs	<input type="radio"/>	<input type="radio"/>
	Identify structural components, connection types and details	<input type="radio"/>	<input type="radio"/>
	Demonstrate fitting and erection of metal decking	<input type="radio"/>	<input type="radio"/>
	Identify types of bridges and their components	<input type="radio"/>	<input type="radio"/>
	Describe the procedure for erecting false work	<input type="radio"/>	<input type="radio"/>
	Describe miscellaneous and architectural steel	<input type="radio"/>	<input type="radio"/>
	Fabricate curtain wall assembly	<input type="radio"/>	<input type="radio"/>
Concrete reinforcing fabrication and placement	Identify where rebar is to be placed to reinforce concrete components against common forces	<input type="radio"/>	<input type="radio"/>
	Select appropriate accessories and bar supports to maintain concrete clearance	<input type="radio"/>	<input type="radio"/>
	Identify rebar using standard industry bar markings, tags and colour code	<input type="radio"/>	<input type="radio"/>
Tendon placement for post tensioning	Describe types and methods of post tensioning concrete	<input type="radio"/>	<input type="radio"/>
	Describe tendon locations, size and layout of supports	<input type="radio"/>	<input type="radio"/>
	Pull tendons to stress with jacking equipment	<input type="radio"/>	<input type="radio"/>
Sketch and read drawings	Interpret basic drawings	<input type="radio"/>	<input type="radio"/>
	Interpret structural steel erection drawings for a pre-engineered building	<input type="radio"/>	<input type="radio"/>
	Interpret structural steel erection drawings	<input type="radio"/>	<input type="radio"/>
	Interpret architectural drawings	<input type="radio"/>	<input type="radio"/>
	Interpret steel fabrication detail drawings for component correctness and prepare a materials list	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Lather (Interior Systems Mechanic)

 (NOC: 7284)

DESCRIPTION: Lathers install ceiling systems and demountable walls, access flooring and partitions. They also install soundproofing, metal lath, drywall, exterior prefabricated wall panels, lead shielding and interior/exterior metal wall studs.

OTHER TITLES: Acoustical Ceiling Installer, Ceiling Installer, Drywall Applicator, Drywall Finisher, Drywall Installer and Finisher, Drywall Taper, Interior Systems Mechanic, Plasterer, Sheetrock Applicator, Wood Lather

MAJOR SKILLS		Can do	Cannot do
Planning and drawings	Read blueprints	<input type="radio"/>	<input type="radio"/>
	Use layout techniques	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
	Use an architect's scale rule	<input type="radio"/>	<input type="radio"/>
	Identify lines, symbols and abbreviations	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools	<input type="radio"/>	<input type="radio"/>
	Use measuring and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain cutting tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools	<input type="radio"/>	<input type="radio"/>
	Use powder-actuated tools	<input type="radio"/>	<input type="radio"/>
Rigging, ladders and scaffolds	Use and maintain saw horses, ladders and stilts	<input type="radio"/>	<input type="radio"/>
	Use and maintain scaffolding	<input type="radio"/>	<input type="radio"/>
	Use approved visual hand signals	<input type="radio"/>	<input type="radio"/>
	Use and maintain lifelines and safety belts	<input type="radio"/>	<input type="radio"/>
	Use fibre ropes, knots, bends and hitches	<input type="radio"/>	<input type="radio"/>
Install insulation	Use appropriate protective gear	<input type="radio"/>	<input type="radio"/>
	Install vapour barriers	<input type="radio"/>	<input type="radio"/>
	Install types of thermal and acoustical insulation	<input type="radio"/>	<input type="radio"/>
	Be aware of the dangers of using asbestos	<input type="radio"/>	<input type="radio"/>
	Use mechanical fasteners and adhesives	<input type="radio"/>	<input type="radio"/>
Install metal framing: non-load bearing	Cut, fit and fasten metal studs	<input type="radio"/>	<input type="radio"/>
	Use layout methods	<input type="radio"/>	<input type="radio"/>
	Use steel stud framing, build walls, ceilings and bulkheads	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install gypsum wallboard	Use cutting, fitting and fastening methods for wallboard	<input type="radio"/>	<input type="radio"/>
	Install different types of wallboard	<input type="radio"/>	<input type="radio"/>
	Use proper methods of handling and stacking	<input type="radio"/>	<input type="radio"/>
	Recognize problems when installing and finishing wallboard	<input type="radio"/>	<input type="radio"/>
Install beads and mouldings	Cut, fit and fasten beads and mouldings	<input type="radio"/>	<input type="radio"/>
	Install drywall and plaster beads	<input type="radio"/>	<input type="radio"/>
	Install drywall mouldings	<input type="radio"/>	<input type="radio"/>
	Install drywall and plaster expansion joints	<input type="radio"/>	<input type="radio"/>
Install fireproofing and soundproofing	Know how and when to use different types of beads and moulding	<input type="radio"/>	<input type="radio"/>
	Cut, fit and fasten fire and soundproofing materials	<input type="radio"/>	<input type="radio"/>
	Install materials for soundproofing walls and ceilings	<input type="radio"/>	<input type="radio"/>
	Know types of materials used for fire and soundproofing	<input type="radio"/>	<input type="radio"/>
Install suspended gypsum wallboard ceilings	Know cutting, fitting and fastening methods for wallboard	<input type="radio"/>	<input type="radio"/>
	Perform layout methods	<input type="radio"/>	<input type="radio"/>
	Install types of gypsum wallboard	<input type="radio"/>	<input type="radio"/>
	Use proper methods of handling and stacking	<input type="radio"/>	<input type="radio"/>
Install acoustical ceilings	Recognize problems when installing and finishing wallboard	<input type="radio"/>	<input type="radio"/>
	Know cut, fit and fasten methods for acoustical ceiling	<input type="radio"/>	<input type="radio"/>
	Install acoustical ceilings	<input type="radio"/>	<input type="radio"/>
	Perform layout methods	<input type="radio"/>	<input type="radio"/>
Apply metal lath and wire	Use different types of acoustical ceiling material	<input type="radio"/>	<input type="radio"/>
	Know cut, fit and fasten methods for metal lath	<input type="radio"/>	<input type="radio"/>
	Install types of wire	<input type="radio"/>	<input type="radio"/>
Install metal lath and ceilings	Install types of lath	<input type="radio"/>	<input type="radio"/>
	Apply metal lath and ceiling types layout methods	<input type="radio"/>	<input type="radio"/>
	Know cut, fit and fastening methods for metal lath and ceiling types	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Machinist** (NOC: 7231)

DESCRIPTION: Machinists set-up and operate machines. They must possess a wide range of knowledge and skills, including the ability to read engineering drawings, do layout procedures, and use mathematics, as well as machining and assembly. They must be able to work with and communicate with other tradespeople in related metal trades.

OTHER TITLES: Fitter/Turner, Turner, Tool and Die, Engine Machinist, Automotive Machinist, CNC Machinist

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Millwright, Specialist Machinist (e.g., Cutter Grinder, Horizontal Drilling Machine Operator)

MAJOR SKILLS		Can do	Cannot do
Planning and use of drawings	Read and interpret drawings, blueprints and sketches	<input type="radio"/>	<input type="radio"/>
	Know first-angle and third-angle projection	<input type="radio"/>	<input type="radio"/>
	Know symbols such as surface finishes, scales and tolerances	<input type="radio"/>	<input type="radio"/>
	Read documents such as work orders, technical data, reference manuals	<input type="radio"/>	<input type="radio"/>
	Plan work and work activities	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Identify and use common hand tools, portable power tools	<input type="radio"/>	<input type="radio"/>
	Maintain and store hand tools and portable power tools	<input type="radio"/>	<input type="radio"/>
	Use measuring tools such as micrometers, vernier calipers, gear tooth verniers, protractors, sine bars and gauge blocks	<input type="radio"/>	<input type="radio"/>
	Use layout tools, height gauges, angle plates, scribes	<input type="radio"/>	<input type="radio"/>
Bench work	Select correct file type and know filing technique	<input type="radio"/>	<input type="radio"/>
	Use hand saws and know sawing technique, types of saw blades	<input type="radio"/>	<input type="radio"/>
	Use tools such as drills, reamers and hones	<input type="radio"/>	<input type="radio"/>
	Use taps and dies	<input type="radio"/>	<input type="radio"/>
	Identify types of fasteners and tools	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Use rigging and lifting procedures	<input type="radio"/>	<input type="radio"/>
	Determine load weight	<input type="radio"/>	<input type="radio"/>
	Use basic body mechanics for lifting and moving equipment	<input type="radio"/>	<input type="radio"/>
	Use visual and audio signals when lifting	<input type="radio"/>	<input type="radio"/>
	Test physical properties of materials	<input type="radio"/>	<input type="radio"/>
	Identify non-metals	<input type="radio"/>	<input type="radio"/>
	Identify ferrous and non-ferrous metals	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Lathes	Identify engine lathes, turret lathes and vertical lathes	<input type="radio"/>	<input type="radio"/>
	Do set-up, turning, threading, drilling, boring and grinding	<input type="radio"/>	<input type="radio"/>
	Calculate speeds and feeds, turn internal and external surfaces	<input type="radio"/>	<input type="radio"/>
	Select size and type of cutting tools, boring bars, parting tools	<input type="radio"/>	<input type="radio"/>
Grinders	Identify surface, cylindrical and centreless tool and cutter grinder	<input type="radio"/>	<input type="radio"/>
	Select and maintain grinding wheels	<input type="radio"/>	<input type="radio"/>
	Mount, balance, true and dress grinding wheels	<input type="radio"/>	<input type="radio"/>
	Calculate speeds and feeds, and depth of cuts	<input type="radio"/>	<input type="radio"/>
Drilling machines	Identify radial arm drill, bench and floor drills	<input type="radio"/>	<input type="radio"/>
	Know sizes and types of cutting tools	<input type="radio"/>	<input type="radio"/>
	Do centre drilling, drilling, counter-boring, countersinking, spot facing, tapping and reaming	<input type="radio"/>	<input type="radio"/>
	Calculate speeds and feeds, and set-up work pieces	<input type="radio"/>	<input type="radio"/>
Milling machines	Identify vertical, horizontal, ram and turret milling machines	<input type="radio"/>	<input type="radio"/>
	Set-up work pieces with holding devices	<input type="radio"/>	<input type="radio"/>
	Calculate speeds and feeds	<input type="radio"/>	<input type="radio"/>
	Use cutting tools, boring bars, end mills and face mills	<input type="radio"/>	<input type="radio"/>
Boring machines	Do facing, contouring, t-slots, dovetails and boring	<input type="radio"/>	<input type="radio"/>
	Identify horizontal boring mills, vertical boring mills	<input type="radio"/>	<input type="radio"/>
	Set-up work pieces with holding devices	<input type="radio"/>	<input type="radio"/>
	Calculate speeds and feeds	<input type="radio"/>	<input type="radio"/>
Planer, shaper and slotters	Use cutting tools, boring bars, milling heads	<input type="radio"/>	<input type="radio"/>
	Use finishing techniques, drilling, reaming, boring and honing	<input type="radio"/>	<input type="radio"/>
	Identify planers, shapers and slotters	<input type="radio"/>	<input type="radio"/>
	Set-up work pieces with holding devices	<input type="radio"/>	<input type="radio"/>
Power saws	Calculate speeds and feeds	<input type="radio"/>	<input type="radio"/>
	Use cutting tools, multi-tool heads, milling heads	<input type="radio"/>	<input type="radio"/>
	Identify vertical, horizontal and reciprocating saws	<input type="radio"/>	<input type="radio"/>
	Install saw blades, adjust tension, set and position blade guides	<input type="radio"/>	<input type="radio"/>
CNC machines	Do adjustments such as angles, guides, stops, speeds and feeds	<input type="radio"/>	<input type="radio"/>
	Perform basic CNC programming	<input type="radio"/>	<input type="radio"/>
	Set-up and operate CNC machines	<input type="radio"/>	<input type="radio"/>
	Select tooling and tool holders	<input type="radio"/>	<input type="radio"/>
	Load and unload machine	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Millwright (Industrial Mechanic)

 (NOC: 7311)

DESCRIPTION: Millwright/Industrial Mechanics install industry plant machinery and ancillary equipment and maintain, repair, rebuilt, and replace machinery and equipment.

OTHER TITLES: Fitter, Fitter/Turner, Machinist, Engine Fitter, Engine Machinist

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Marine Engineer, Power Engineer, Stationary Engineer

MAJOR SKILLS		Can do	Cannot do
Planning, drawings and layout	Ability to read and interpret drawings, blueprints, sketches	<input type="radio"/>	<input type="radio"/>
	Must know STD codes such as ASTM and ANSI	<input type="radio"/>	<input type="radio"/>
	Produce sketch or drawing and develop material take-off list	<input type="radio"/>	<input type="radio"/>
	Use drawing, blueprints or sketches, do layouts	<input type="radio"/>	<input type="radio"/>
	Be able to plan work and work activities	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Identify and use common hand tools, portable power tools	<input type="radio"/>	<input type="radio"/>
	Maintain and store hand tools and portable power tools	<input type="radio"/>	<input type="radio"/>
	Use measuring tools to do layouts to specifications	<input type="radio"/>	<input type="radio"/>
	Set-up and operate shop machines	<input type="radio"/>	<input type="radio"/>
Fastening devices	Know types of materials used for fasteners	<input type="radio"/>	<input type="radio"/>
	Use of torquing procedures	<input type="radio"/>	<input type="radio"/>
	Use of appropriate resins to secure components	<input type="radio"/>	<input type="radio"/>
	Able to identify, use retaining devices	<input type="radio"/>	<input type="radio"/>
	Identify types of fasteners and tools	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Assemble and use scaffolds, lifts and ladders	<input type="radio"/>	<input type="radio"/>
	Determine load weight	<input type="radio"/>	<input type="radio"/>
	Safely lift loads, secure, transport and unload machinery	<input type="radio"/>	<input type="radio"/>
	Use of correct hand signals and radio to communicate	<input type="radio"/>	<input type="radio"/>
Welding, metallurgy	Use of oxy-acetylene equipment to do cutting and welding	<input type="radio"/>	<input type="radio"/>
	Weld or braze metal, achieve proper fusion and penetration	<input type="radio"/>	<input type="radio"/>
	Use of arc welding equipment on ferrous metals	<input type="radio"/>	<input type="radio"/>
	Identify ferrous and non-ferrous metals	<input type="radio"/>	<input type="radio"/>
	Perform heat treatment of metal components	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Installation and maintenance	Install appropriate metal guards, rails as required for safety	<input type="radio"/>	<input type="radio"/>
Lubrication	Select proper lubricants and fluids	<input type="radio"/>	<input type="radio"/>
	Test and analyze lubricants and fluids	<input type="radio"/>	<input type="radio"/>
Alignment of machinery	Use transit and laser to level machinery/equipment	<input type="radio"/>	<input type="radio"/>
	Able to adjust machinery/equipment in three axes	<input type="radio"/>	<input type="radio"/>
	Use shims to level machinery/equipment	<input type="radio"/>	<input type="radio"/>
Power drives	Install all common power drives and components	<input type="radio"/>	<input type="radio"/>
	Troubleshoot, inspect and analyze power drives and components	<input type="radio"/>	<input type="radio"/>
	Repair and maintain power drives and components	<input type="radio"/>	<input type="radio"/>
Material moving systems	Install different types of material moving systems (MMS)	<input type="radio"/>	<input type="radio"/>
	Maintain MMS components, assemblies and sub-assemblies	<input type="radio"/>	<input type="radio"/>
	Repair, modify and replace MMS, components and assemblies	<input type="radio"/>	<input type="radio"/>
Machine components	Install all types of shafts, bearings and seals	<input type="radio"/>	<input type="radio"/>
	Inspect, test and examine shafts, bearings and seals	<input type="radio"/>	<input type="radio"/>
	Repair, modify and replace shafts, bearings and seals	<input type="radio"/>	<input type="radio"/>
	Identify types of keys and keyways on shafts and couplings	<input type="radio"/>	<input type="radio"/>
	Install keys on shafts and couplings	<input type="radio"/>	<input type="radio"/>
Prime movers	Install prime movers, associated equipment and support systems	<input type="radio"/>	<input type="radio"/>
	Troubleshoot, inspect and analyze prime movers	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace prime movers and/or support systems	<input type="radio"/>	<input type="radio"/>
Pumps	Install all types of pumps, pump components, tubing and piping	<input type="radio"/>	<input type="radio"/>
	Troubleshoot, inspect and identify pump problems	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace pumps	<input type="radio"/>	<input type="radio"/>
	Install all types of valves and seals	<input type="radio"/>	<input type="radio"/>
	Maintain, repair and replace valves and seals	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Fluid power	Install all types of hydraulic systems	<input type="radio"/>	<input type="radio"/>
	Use schematics and specifications to install piping	<input type="radio"/>	<input type="radio"/>
	Install and align hydraulic pump and motor	<input type="radio"/>	<input type="radio"/>
	Install correct size of reservoir	<input type="radio"/>	<input type="radio"/>
	Measure, cut bend and install piping	<input type="radio"/>	<input type="radio"/>
	Install filters, strainers, hydraulic valves and seals	<input type="radio"/>	<input type="radio"/>
	Record hydraulic data, check specifications and adjust if required	<input type="radio"/>	<input type="radio"/>
	Troubleshoot/test and identify faults and problems	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace hydraulic components and systems	<input type="radio"/>	<input type="radio"/>
Pneumatic systems	Install all types of pneumatic systems and components	<input type="radio"/>	<input type="radio"/>
	Install and align air compressors and equipment/accessories	<input type="radio"/>	<input type="radio"/>
	Select required tubing, cut, bend and install	<input type="radio"/>	<input type="radio"/>
	Select and install pneumatic valves	<input type="radio"/>	<input type="radio"/>
	Troubleshoot and identify faults and problems	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace pneumatic systems and components	<input type="radio"/>	<input type="radio"/>
Vacuum systems	Record pneumatic pressures, check specifications and adjust	<input type="radio"/>	<input type="radio"/>
	Install all types of vacuum systems and components	<input type="radio"/>	<input type="radio"/>
	Select piping/tubing required, cut, bend and install	<input type="radio"/>	<input type="radio"/>
	Troubleshoot and identify faults and problems	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace, fine-tune and lubricate vacuum systems	<input type="radio"/>	<input type="radio"/>
Fans and blowers	Install fans and blowers, associated equipment and support systems	<input type="radio"/>	<input type="radio"/>
	Troubleshoot and identify faults and problems	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace fans and blowers	<input type="radio"/>	<input type="radio"/>
Tanks and containers	Install all types of tanks, containers and related components	<input type="radio"/>	<input type="radio"/>
	Identify faults and problems with tanks and containers such as auto-gauging	<input type="radio"/>	<input type="radio"/>
	Maintain, repair, modify and replace tanks, containers and components	<input type="radio"/>	<input type="radio"/>
	Change liners, maintain ventilation system	<input type="radio"/>	<input type="radio"/>
	Read, record and test vibration analysis data	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Vibration analysis	Determine vibration noise measurement	<input type="radio"/>	<input type="radio"/>
	Identify vibration frequencies in journal and rolling element bearings, mechanical looseness, rubbing, gears, belts, cavitation and hydraulic systems	<input type="radio"/>	<input type="radio"/>
	Install transducers and related equipment	<input type="radio"/>	<input type="radio"/>
	Determine vibration limits using manuals and tables	<input type="radio"/>	<input type="radio"/>
	Use static and dynamic balancing procedures	<input type="radio"/>	<input type="radio"/>
	Use single and multi-plane balancing methods	<input type="radio"/>	<input type="radio"/>
	Balance equipment to ISO standards	<input type="radio"/>	<input type="radio"/>
Preventive maintenance (PM)	Use existing data to determine PM requirements	<input type="radio"/>	<input type="radio"/>
	Use CPM (critical path method) and PERT (program evaluation review technique) in maintenance planning programs	<input type="radio"/>	<input type="radio"/>
	Perform a safety audit on machinery and equipment	<input type="radio"/>	<input type="radio"/>
	Follow manufacturers' recommended specifications for PM	<input type="radio"/>	<input type="radio"/>
	Identify outstanding problems from unusual sounds, vibrations, etc.	<input type="radio"/>	<input type="radio"/>
	Monitor for wear, adjust and calibrate equipment	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Mobile Crane Operator** (NOC: 7371)

DESCRIPTION: Mobile Crane Operators (construction industry) operate any hoisting device or structure that incorporates a power-driven drum and wire rope designed for raising, lowering or moving material and is equipped with a hook, either cable-suspended or hydraulically supported, capable of moving in the vertical and horizontal plane and mounted on a base or chassis intended to provide mobility. The mobile crane may be crawler- or wheel-mounted, but excludes boom trucks, side booms and rail-mounted tower or gantry cranes.

OTHER TITLES: Crane Operator, Crane and Hoist Operator, Crane and Hoisting Equipment Operator

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Tower Crane Operator, Hydraulic Boom Crane Operator

MAJOR SKILLS		Can do	Cannot do
Tools	Use hand tools	<input type="radio"/>	<input type="radio"/>
	Use power tools	<input type="radio"/>	<input type="radio"/>
	Use oxy-acetylene cutting torch	<input type="radio"/>	<input type="radio"/>
	Cut blocking with power saw	<input type="radio"/>	<input type="radio"/>
Fuels, coolants, oils and lubricants	Fuel-up cranes	<input type="radio"/>	<input type="radio"/>
	Change and top-up coolant	<input type="radio"/>	<input type="radio"/>
	Lubricate cranes	<input type="radio"/>	<input type="radio"/>
Hydraulic systems	Assemble hydraulic hoses and fittings	<input type="radio"/>	<input type="radio"/>
	Operate basic hydraulic system	<input type="radio"/>	<input type="radio"/>
	Perform routine maintenance and inspection of crane hydraulic system	<input type="radio"/>	<input type="radio"/>
Wire rope and rigging hardware	Determine crane capacity	<input type="radio"/>	<input type="radio"/>
	Pre-plan a crane lift	<input type="radio"/>	<input type="radio"/>
	Rig a load	<input type="radio"/>	<input type="radio"/>
	Maintain wire rope and rigging and components hardware	<input type="radio"/>	<input type="radio"/>
Engine support systems	Service the engine lubrication systems	<input type="radio"/>	<input type="radio"/>
	Service engine cooling systems	<input type="radio"/>	<input type="radio"/>
	Service air intake systems	<input type="radio"/>	<input type="radio"/>
	Service engine electrical systems	<input type="radio"/>	<input type="radio"/>
	Service engine fuel systems	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Hydraulic boom, truck cranes	Perform routine inspection and maintenance of crane hydraulic system	<input type="radio"/>	<input type="radio"/>
	Assemble and erect crane to working position	<input type="radio"/>	<input type="radio"/>
	Start, move and shutdown the carrier and upper-works of a hydraulic boom truck crane	<input type="radio"/>	<input type="radio"/>
	Determine lifting capacities of crane using load charts	<input type="radio"/>	<input type="radio"/>
	Perform hoisting operations	<input type="radio"/>	<input type="radio"/>
	Prepare a crane for transport	<input type="radio"/>	<input type="radio"/>
Hydraulic boom, rough terrain cranes	Carry out maintenance of the crane carrier system	<input type="radio"/>	<input type="radio"/>
	Perform routine inspection and maintenance of crane hydraulic system	<input type="radio"/>	<input type="radio"/>
	Assemble and erect crane to working position	<input type="radio"/>	<input type="radio"/>
	Start, move and shut down a rough-terrain crane	<input type="radio"/>	<input type="radio"/>
	Determine lifting capacities of crane using load charts	<input type="radio"/>	<input type="radio"/>
	Perform hoisting operations	<input type="radio"/>	<input type="radio"/>
Lattice boom, truck cranes	Prepare a crane for transport	<input type="radio"/>	<input type="radio"/>
	Carry out maintenance of the crane carrier system	<input type="radio"/>	<input type="radio"/>
	Perform routine inspection and maintenance of crane	<input type="radio"/>	<input type="radio"/>
	Assemble and erect crane to working position	<input type="radio"/>	<input type="radio"/>
	Start, move and shut down a lattice boom truck crane	<input type="radio"/>	<input type="radio"/>
	Determine lifting capacities of crane using load charts	<input type="radio"/>	<input type="radio"/>
Lattice boom, crawler cranes	Perform hoisting operations	<input type="radio"/>	<input type="radio"/>
	Dismantle and prepare a crane for transport	<input type="radio"/>	<input type="radio"/>
	Carry out maintenance of the crane carrier system	<input type="radio"/>	<input type="radio"/>
	Perform routine inspection and maintenance of crane	<input type="radio"/>	<input type="radio"/>
	Assemble and erect a lattice boom crawler crane to the working position	<input type="radio"/>	<input type="radio"/>
	Perform routine maintenance and adjustment of lower works components	<input type="radio"/>	<input type="radio"/>
	Perform routine upper works maintenance and adjustments	<input type="radio"/>	<input type="radio"/>
	Start, cycle, move and shut-down a crawler crane	<input type="radio"/>	<input type="radio"/>
	Determine lifting capacities of crane using load charts	<input type="radio"/>	<input type="radio"/>
	Perform hoisting operations	<input type="radio"/>	<input type="radio"/>
	Dismantle and prepare a crane for transport	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: Painter and Decorator (NOC: 7294)

DESCRIPTION: Painters and Decorators apply paint, wallpaper and other finishes to interior and exterior surfaces of buildings and other structures.

OTHER TITLES: Construction Painter, Maintenance Painter, Paperhanger

MAJOR SKILLS		Can do	Cannot do
Drawings and related documents	Read residential and commercial blueprints	<input type="radio"/>	<input type="radio"/>
	Estimate material quantities and identify construction details	<input type="radio"/>	<input type="radio"/>
	Identify lines, symbols, scales and dimensions	<input type="radio"/>	<input type="radio"/>
	Identify symbols and abbreviations	<input type="radio"/>	<input type="radio"/>
	Interpret specifications and schedules	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools and equipment	<input type="radio"/>	<input type="radio"/>
	Use and maintain paint application tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain power tools	<input type="radio"/>	<input type="radio"/>
	Use abrasive products	<input type="radio"/>	<input type="radio"/>
	Protect surrounding areas	<input type="radio"/>	<input type="radio"/>
Coating systems	Identify specification, inspection agencies and testing of materials	<input type="radio"/>	<input type="radio"/>
	Identify basic components of paint and coatings	<input type="radio"/>	<input type="radio"/>
	Apply coating systems	<input type="radio"/>	<input type="radio"/>
	Identify appropriate coating systems	<input type="radio"/>	<input type="radio"/>
Decorative finishes	Identify surface preparation procedures	<input type="radio"/>	<input type="radio"/>
	Use glazing techniques	<input type="radio"/>	<input type="radio"/>
	Apply specialty finishes	<input type="radio"/>	<input type="radio"/>
	Apply texture finishes	<input type="radio"/>	<input type="radio"/>
Lay out lining and graphics	Lay out lining and graphics	<input type="radio"/>	<input type="radio"/>
	Apply graphics	<input type="radio"/>	<input type="radio"/>
Match colours	Use a colour wheel	<input type="radio"/>	<input type="radio"/>
	Create colours using bases and colour tints	<input type="radio"/>	<input type="radio"/>
	Match colours	<input type="radio"/>	<input type="radio"/>
	Identify colour codes	<input type="radio"/>	<input type="radio"/>
	Identify characteristics of colour	<input type="radio"/>	<input type="radio"/>
	Identify effect of light on colour	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Prepare surfaces	Use caulking compounds	<input type="radio"/>	<input type="radio"/>
	Prepare drywall surfaces	<input type="radio"/>	<input type="radio"/>
	Prepare wood surfaces	<input type="radio"/>	<input type="radio"/>
	Use abrasive blasting	<input type="radio"/>	<input type="radio"/>
	Identify paint failures and remedies	<input type="radio"/>	<input type="radio"/>
	Prepare steel substrates	<input type="radio"/>	<input type="radio"/>
	Prepare substrates	<input type="radio"/>	<input type="radio"/>
Spray painting equipment	Identify types of spray systems	<input type="radio"/>	<input type="radio"/>
	Use and maintain airless spray equipment	<input type="radio"/>	<input type="radio"/>
	Use and maintain air spray equipment	<input type="radio"/>	<input type="radio"/>
	Use and maintain specialty spray equipment	<input type="radio"/>	<input type="radio"/>
Wall coverings	Estimate wall covering quantities	<input type="radio"/>	<input type="radio"/>
	Execute surface preparation requirements	<input type="radio"/>	<input type="radio"/>
	Install wall coverings	<input type="radio"/>	<input type="radio"/>
	Remove wall coverings	<input type="radio"/>	<input type="radio"/>
	Identify adhesives	<input type="radio"/>	<input type="radio"/>
	Identify wall covering materials	<input type="radio"/>	<input type="radio"/>
	Use wall covering tools	<input type="radio"/>	<input type="radio"/>
Wood finishing products	Prepare wood surfaces for finishing products	<input type="radio"/>	<input type="radio"/>
	Identify stains, fillers, sealers and topcoats	<input type="radio"/>	<input type="radio"/>
	Apply finishing products	<input type="radio"/>	<input type="radio"/>
	Maintain and repair wood finishes	<input type="radio"/>	<input type="radio"/>
	Identify wood composite products	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Plumber** (NOC: 7251)

DESCRIPTION: Plumbers install, repair and maintain pipes, fixtures and other plumbing equipment used for water distribution and waste water disposal in residential, commercial and industrial buildings.

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Maintenance Plumber

MAJOR SKILLS		Can do	Cannot do
Use power and pound or activated tools	Use plumbing hand tools, use measuring layout and levelling tools	<input type="radio"/>	<input type="radio"/>
	Use pipe cutting and threading tools, use power tools, use piping shop tools	<input type="radio"/>	<input type="radio"/>
	Use builder's level	<input type="radio"/>	<input type="radio"/>
	Use laser and electronic levels	<input type="radio"/>	<input type="radio"/>
Select pipes, valves and fittings	Describe plumbing valves	<input type="radio"/>	<input type="radio"/>
	Describe hangers and supports	<input type="radio"/>	<input type="radio"/>
	Select piping for specific applications	<input type="radio"/>	<input type="radio"/>
	Select tubing for specific applications	<input type="radio"/>	<input type="radio"/>
Cut, weld, braze and solder metals	Use sealants and gaskets	<input type="radio"/>	<input type="radio"/>
	Identify gases, components and procedures for oxy-fuel cutting and welding	<input type="radio"/>	<input type="radio"/>
	Assemble, test, light, adjust, shut down and disassemble portable oxy-fuel equipment	<input type="radio"/>	<input type="radio"/>
	Solder copper fittings and joints	<input type="radio"/>	<input type="radio"/>
Read and interpret pipe drawing and specifications	Weld pipe joints	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
	Identify standard piping symbols	<input type="radio"/>	<input type="radio"/>
	Read and interpret piping drawings	<input type="radio"/>	<input type="radio"/>
Lay out drainage and venting systems	Take material from piping drawings	<input type="radio"/>	<input type="radio"/>
	Apply the <i>Plumbing Code</i> to single-family residences	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install potable water systems	Design and size potable water systems for single-family residential applications	<input type="radio"/>	<input type="radio"/>
	Describe water distribution services	<input type="radio"/>	<input type="radio"/>
	Install hot water heating system	<input type="radio"/>	<input type="radio"/>
Install and troubleshoot pumps	Describe types of pumps	<input type="radio"/>	<input type="radio"/>
	Install and troubleshoot pumps	<input type="radio"/>	<input type="radio"/>
Install gas appliance piping, venting and storage	Describe fuel gases	<input type="radio"/>	<input type="radio"/>
	Size and install gas piping systems	<input type="radio"/>	<input type="radio"/>
	Design and install a propane storage system	<input type="radio"/>	<input type="radio"/>
	Select and change orifices in a burner	<input type="radio"/>	<input type="radio"/>
Install and test hot water heating systems	Describe types of hot-water heating systems	<input type="radio"/>	<input type="radio"/>
	Describe hot-water hearing boilers	<input type="radio"/>	<input type="radio"/>
	Install boilers	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Power Line Technician** (NOC: 7244)

DESCRIPTION: Power Line Technicians construct, maintain and repair the overhead and underground electrical power transmission and distribution systems that make up the electrical power grid. This involves putting up and maintaining electrical poles, towers and guy wires as well as installing or repairing the live-line wiring and other components required to connect power distribution and transmission networks. Power Line Technicians also inspect and test overhead and underground power lines and auxiliary equipment, and install and maintain street lighting systems. Because of the nature of their work, they are often working at heights on poles and towers, either on a ladder or in a hydraulic bucket. In some cases, they are required to work in confined spaces like trenches or tunnels to install underground lines or equipment.

OTHER TITLES: Lineman, Operating Lineman, Power Line Electrician, Power Lineman, Power Lineperson, Power Line Worker, Power Line Technician (Lineman)

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Industrial Electrician, Construction Electrician

MAJOR SKILLS		Can do	Cannot do
Overhead distribution	Construct and maintain overhead distribution lines applying utility standards	<input type="radio"/>	<input type="radio"/>
	Identify and select materials	<input type="radio"/>	<input type="radio"/>
	Install, operate and maintain overhead electrical apparatus	<input type="radio"/>	<input type="radio"/>
Underground residential distribution (URD)	Construct and maintain URD distribution lines applying utility standards	<input type="radio"/>	<input type="radio"/>
	Identify and select materials	<input type="radio"/>	<input type="radio"/>
	Install, operate and maintain URD electrical apparatus	<input type="radio"/>	<input type="radio"/>
	Identify line status	<input type="radio"/>	<input type="radio"/>
Transmission	Construct and maintain transmission lines applying utility standards	<input type="radio"/>	<input type="radio"/>
	Identify and select materials	<input type="radio"/>	<input type="radio"/>
	Install, operate and maintain transmission electrical apparatus	<input type="radio"/>	<input type="radio"/>
Rigging	Identify and demonstrate lifting and rigging components	<input type="radio"/>	<input type="radio"/>
	Identify and demonstrate distribution rigging	<input type="radio"/>	<input type="radio"/>
	Identify and demonstrate transmission rigging	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Work practices	Identify and demonstrate correct grounding and equi-potential procedures	<input type="radio"/>	<input type="radio"/>
	Identify and demonstrate lock-out procedures	<input type="radio"/>	<input type="radio"/>
	Recognize and observe limits of approach	<input type="radio"/>	<input type="radio"/>
	Demonstrate communication methods	<input type="radio"/>	<input type="radio"/>
	Perform rescue procedures	<input type="radio"/>	<input type="radio"/>
	Handle transportation and storage of hazardous materials	<input type="radio"/>	<input type="radio"/>
Climbing	Climb wood structures	<input type="radio"/>	<input type="radio"/>
	Climb steel structures	<input type="radio"/>	<input type="radio"/>
	Work on elevated platforms	<input type="radio"/>	<input type="radio"/>
	Test for pole (structure) stability	<input type="radio"/>	<input type="radio"/>
Equipment	Care for and use hydraulically equipped vehicles	<input type="radio"/>	<input type="radio"/>
	Care for and use stringing equipment (distribution and transmission)	<input type="radio"/>	<input type="radio"/>
Tools and instruments	Care for and use live line tools	<input type="radio"/>	<input type="radio"/>
	Care for and use test instruments	<input type="radio"/>	<input type="radio"/>
	Install metering (single phase, three phase, primary, secondary)	<input type="radio"/>	<input type="radio"/>
	Correct power factor	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Refrigeration and Air Conditioning Mechanic

 (NOC: 7313)

DESCRIPTION: Refrigeration and Air Conditioning Mechanics make, install, repair and service residential, commercial and industrial cooling and heating systems. Some work in building maintenance, e.g., servicing the air conditioning systems in high-rise office buildings; others specialize in repairing small, portable refrigeration and freezing units.

OTHER TITLES: Pipefitter – Refrigeration Mechanic Specialty, Refrigeration and Air Conditioning, Refrigeration Mechanic

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Millwright, Pipefitter, Industrial Electrician, Electric Motor System Technician

MAJOR SKILLS		Can do	Cannot do
Welding and brazing	Use oxy-acetylene and air acetylene welding equipment for welding and brazing	<input type="radio"/>	<input type="radio"/>
	Do electric arc welding	<input type="radio"/>	<input type="radio"/>
Tools	Use charging, evacuation and reclaim tools	<input type="radio"/>	<input type="radio"/>
	Use hand, precision measuring and power tools	<input type="radio"/>	<input type="radio"/>
Piping practices	Test for refrigerant leaks	<input type="radio"/>	<input type="radio"/>
	Install piping for refrigeration systems	<input type="radio"/>	<input type="radio"/>
Single and three-phase electricity	Install and operate single phase electric motor	<input type="radio"/>	<input type="radio"/>
	Install and operate three phase electric motor	<input type="radio"/>	<input type="radio"/>
	Install and test motor starters	<input type="radio"/>	<input type="radio"/>
	Use electric meters to test for voltage, resistance and current	<input type="radio"/>	<input type="radio"/>
	Use computers and software to calculate heating and cooling loads	<input type="radio"/>	<input type="radio"/>
	Test rectifier circuits	<input type="radio"/>	<input type="radio"/>
	Troubleshoot motor protection circuits	<input type="radio"/>	<input type="radio"/>
Electronics	Test integrated controls	<input type="radio"/>	<input type="radio"/>
	Test circuit components	<input type="radio"/>	<input type="radio"/>
	Test remote monitoring systems	<input type="radio"/>	<input type="radio"/>
	Interpret electrical and mechanical drawings	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Air conditioning	Install and repair fan systems	<input type="radio"/>	<input type="radio"/>
	Install and replace air-air heat exchangers	<input type="radio"/>	<input type="radio"/>
	Calculate air conditioner, cooler and freezer loads	<input type="radio"/>	<input type="radio"/>
	Charge air conditioning system with refrigerant	<input type="radio"/>	<input type="radio"/>
Refrigeration system components	Install and maintain compressors	<input type="radio"/>	<input type="radio"/>
	Install and maintain evaporators and condensers	<input type="radio"/>	<input type="radio"/>
	Lubricate system components	<input type="radio"/>	<input type="radio"/>
	Install and calibrate metering devices	<input type="radio"/>	<input type="radio"/>
	Repair ammonia systems	<input type="radio"/>	<input type="radio"/>
	Repair absorption systems	<input type="radio"/>	<input type="radio"/>
Mechanical systems	Install and test heat pumps	<input type="radio"/>	<input type="radio"/>
	Install fans	<input type="radio"/>	<input type="radio"/>
	Use rigging to move components	<input type="radio"/>	<input type="radio"/>
Gas applications	Select and change orifices in a burner	<input type="radio"/>	<input type="radio"/>
	Select and install gas regulators	<input type="radio"/>	<input type="radio"/>
	Install and change gas valves	<input type="radio"/>	<input type="radio"/>
	Test gas-fired appliances	<input type="radio"/>	<input type="radio"/>
	Install, set-up and adjust gas burners	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Roofer** (NOC: 7291)

DESCRIPTION: Roofers build and repair flat roofs using hot asphalt, gravel and waterproof sheet materials. They may also build and repair sloped roofs using asphalt and wood shingles, shakes and masonry or baked clay roofing tiles and metal materials, although this type of work is typically done by a residential steep roofer. Their work also involves setting up scaffolding to provide safe access to roofs.

MAJOR SKILLS		Can do	Cannot do
Identify roofing tools and equipment	Identify roofing hand tools	<input type="radio"/>	<input type="radio"/>
	Identify roofing power tools	<input type="radio"/>	<input type="radio"/>
	Perform maintenance on roofing hand tools	<input type="radio"/>	<input type="radio"/>
	Care for and maintain roofing power tools	<input type="radio"/>	<input type="radio"/>
	Care for and maintain hot asphalt equipment	<input type="radio"/>	<input type="radio"/>
	Describe hot asphalt equipment	<input type="radio"/>	<input type="radio"/>
Rigging and hoisting	Apply roofing rigging techniques	<input type="radio"/>	<input type="radio"/>
	Apply safe rigging techniques	<input type="radio"/>	<input type="radio"/>
	Apply roofing hoisting techniques	<input type="radio"/>	<input type="radio"/>
	Carry out erection and dismantling of roofing hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Know rooftop delivery systems	<input type="radio"/>	<input type="radio"/>
	Know rooftop delivery systems operation	<input type="radio"/>	<input type="radio"/>
Read blueprints	Know roof designs and structures	<input type="radio"/>	<input type="radio"/>
	Know types of lines, scales and symbols	<input type="radio"/>	<input type="radio"/>
	Identify terms used for the roofing industry	<input type="radio"/>	<input type="radio"/>
	Identify and interpret types of blueprints and specifications	<input type="radio"/>	<input type="radio"/>
Select flat roofing materials	Identify and select insulation and fastening methods	<input type="radio"/>	<input type="radio"/>
	Identify and select insulation and fastening tools	<input type="radio"/>	<input type="radio"/>
	Identify and select vapour retarders	<input type="radio"/>	<input type="radio"/>
	Identify flashing materials	<input type="radio"/>	<input type="radio"/>
	Identify and select materials used for built-up roofing	<input type="radio"/>	<input type="radio"/>
	Identify and select materials used in flexible membrane roofing systems	<input type="radio"/>	<input type="radio"/>
	Identify and select self-adhering bituminous materials	<input type="radio"/>	<input type="radio"/>
	Identify and select thermoplastics	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install flat roofing materials	Install insulation	<input type="radio"/>	<input type="radio"/>
	Install vapour retarders	<input type="radio"/>	<input type="radio"/>
	Install flashing materials	<input type="radio"/>	<input type="radio"/>
	Install materials used for built-up roofing	<input type="radio"/>	<input type="radio"/>
	Install materials used in flexible membrane roofing systems	<input type="radio"/>	<input type="radio"/>
	Install self-adhering bituminous materials	<input type="radio"/>	<input type="radio"/>
	Install thermoplastics	<input type="radio"/>	<input type="radio"/>
Select steep roofing materials	Identify and select insulation and fastening methods	<input type="radio"/>	<input type="radio"/>
	Identify and select insulation and fastening tools	<input type="radio"/>	<input type="radio"/>
	Identify and select eave protection and under-layments	<input type="radio"/>	<input type="radio"/>
	Identify and select flashing materials	<input type="radio"/>	<input type="radio"/>
	Identify and select organic, fibreglass and SBS shingles	<input type="radio"/>	<input type="radio"/>
	Identify and select wood products	<input type="radio"/>	<input type="radio"/>
	Identify and select concrete and composite materials	<input type="radio"/>	<input type="radio"/>
	Identify and select steep roofing metallic-unitized materials	<input type="radio"/>	<input type="radio"/>
Install steep roofing materials	Identify and select slate and other specialty steep roofing materials	<input type="radio"/>	<input type="radio"/>
	Install insulation	<input type="radio"/>	<input type="radio"/>
	Install eave protection and under-layments	<input type="radio"/>	<input type="radio"/>
	Install flashing materials	<input type="radio"/>	<input type="radio"/>
	Install organic, fibreglass and SBS shingles	<input type="radio"/>	<input type="radio"/>
	Install wood products	<input type="radio"/>	<input type="radio"/>
	Install concrete and composite materials	<input type="radio"/>	<input type="radio"/>
	Install metallic materials	<input type="radio"/>	<input type="radio"/>
Inspect and repair roofs	Install slate and other specialty steep roofing materials	<input type="radio"/>	<input type="radio"/>
	Understand causes of roof failures	<input type="radio"/>	<input type="radio"/>
	Use special tools and equipment for roof repair	<input type="radio"/>	<input type="radio"/>
Damp and waterproof structures	Repair flat and steep roofs	<input type="radio"/>	<input type="radio"/>
	Identify and select damp-proofing and waterproofing materials	<input type="radio"/>	<input type="radio"/>
	Prepare substrate for damp and waterproofing	<input type="radio"/>	<input type="radio"/>
	Damp-proof and waterproof roofs, and above- and below-grade structures	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE:

Sheet Metal Worker

 (NOC: 7261)

DESCRIPTION: Sheet Metal Workers fabricate, assemble, install and repair sheet metal products. They must apply a wide range of knowledge, abilities and skills to perform their duties.

OTHER TITLES: Sheet Metal Fabricator, Sheet Metal Mechanic, Tinsmith

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Metal Fabricator, Metal Press Operator

MAJOR SKILLS		Can do	Cannot do
Drawings and blueprints	Read and interpret drawings, blueprints, sketches	<input type="radio"/>	<input type="radio"/>
	Perform CAD drawing process	<input type="radio"/>	<input type="radio"/>
	Prepare a detailed shop drawing	<input type="radio"/>	<input type="radio"/>
	Read documents such as work orders, technical data, reference manuals	<input type="radio"/>	<input type="radio"/>
	Plan work and work activities	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Identify and use common hand tools, portable power tools	<input type="radio"/>	<input type="radio"/>
	Use riveting techniques and soldering methods	<input type="radio"/>	<input type="radio"/>
	Identify and use shop tools and equipment	<input type="radio"/>	<input type="radio"/>
	Know about CAD/CAM equipment uses	<input type="radio"/>	<input type="radio"/>
Lay out and develop patterns	Draw objects using orthographic projections	<input type="radio"/>	<input type="radio"/>
	Develop geometric constructions	<input type="radio"/>	<input type="radio"/>
	Develop patterns for duct fittings	<input type="radio"/>	<input type="radio"/>
	Develop patterns using parallel line development	<input type="radio"/>	<input type="radio"/>
	Develop patterns using radial line development	<input type="radio"/>	<input type="radio"/>
	Develop patterns using triangulation development	<input type="radio"/>	<input type="radio"/>
	Develop patterns for round fittings	<input type="radio"/>	<input type="radio"/>
	Develop patterns using a combination of techniques	<input type="radio"/>	<input type="radio"/>
	Identify types and uses of drafting equipment	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Fabricate shop projects	Fabricate seams, locks, edges and joints	<input type="radio"/>	<input type="radio"/>
	Fabricate a project using parallel line development	<input type="radio"/>	<input type="radio"/>
	Fabricate a project using radial line development	<input type="radio"/>	<input type="radio"/>
	Fabricate a project using triangulation development	<input type="radio"/>	<input type="radio"/>
	Fabricate duct fittings	<input type="radio"/>	<input type="radio"/>
	Fabricate a project to be MIG/SMA-welded	<input type="radio"/>	<input type="radio"/>
	Fabricate a project using heavy gauge metal	<input type="radio"/>	<input type="radio"/>
	Fabricate a project involving louvers and opposed blade dampers	<input type="radio"/>	<input type="radio"/>
	Fabricate a stainless steel project	<input type="radio"/>	<input type="radio"/>
	Finish a stainless steel project	<input type="radio"/>	<input type="radio"/>
	Fabricate round and rectangular fittings	<input type="radio"/>	<input type="radio"/>
	Use a press brake and power shear	<input type="radio"/>	<input type="radio"/>
	Install field-measured project	<input type="radio"/>	<input type="radio"/>
Materials and equipment	Identify air filters	<input type="radio"/>	<input type="radio"/>
	Identify fasteners and fastening tools	<input type="radio"/>	<input type="radio"/>
	Identify insulation and fastening methods	<input type="radio"/>	<input type="radio"/>
	Identify materials commonly used in sheet metal and architectural industry	<input type="radio"/>	<input type="radio"/>
	Identify stainless steel and aluminum	<input type="radio"/>	<input type="radio"/>
Field installation methods	Identify terminal, mixing and induction units	<input type="radio"/>	<input type="radio"/>
	Use rigging and hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Install ducts	<input type="radio"/>	<input type="radio"/>
	Install heating ventilating air conditioning (HVAC) system	<input type="radio"/>	<input type="radio"/>
Architectural sheet metal components	Install venting system	<input type="radio"/>	<input type="radio"/>
	Install architectural metal	<input type="radio"/>	<input type="radio"/>
	Identify gutter, flashing and cornice design	<input type="radio"/>	<input type="radio"/>
Residential heating requirements	Identify ventilators and louvers	<input type="radio"/>	<input type="radio"/>
	Perform residential furnace installations	<input type="radio"/>	<input type="radio"/>
	Identify the need for a HVAC system	<input type="radio"/>	<input type="radio"/>
Blowpipe systems and equipment	Install residential heating and ventilating systems	<input type="radio"/>	<input type="radio"/>
	Identify blowpipe systems equipment and design	<input type="radio"/>	<input type="radio"/>
	Identify cyclones	<input type="radio"/>	<input type="radio"/>
	Identify bag houses	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Stainless steel equipment components	Identify fixtures used in the food service industry	<input type="radio"/>	<input type="radio"/>
	Carry out stainless steel fabrication procedures	<input type="radio"/>	<input type="radio"/>
	Carry out stainless steel finishing procedures	<input type="radio"/>	<input type="radio"/>
	Carry out stainless steel fixture construction	<input type="radio"/>	<input type="radio"/>
	Identify other materials used in stainless steel fixture construction	<input type="radio"/>	<input type="radio"/>
Duct system sound attenuation methods	Identify types and construction of sound attenuation	<input type="radio"/>	<input type="radio"/>
Welding sheet metal skills	Perform ARC and MIG welding	<input type="radio"/>	<input type="radio"/>
	Assemble, ignite, shut down and maintain oxy-fuel gas cutting and welding equipment	<input type="radio"/>	<input type="radio"/>
	Cut and weld	<input type="radio"/>	<input type="radio"/>
	Perform plasma cutting	<input type="radio"/>	<input type="radio"/>
	Perform TIG welding	<input type="radio"/>	<input type="radio"/>
	Identify common metals and their characteristics	<input type="radio"/>	<input type="radio"/>
	Identify welding symbols and joint design	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Sprinkler System Fitter** (NOC: 7252)

DESCRIPTION: Sprinkler System Fitters fabricate, install, test, maintain, and repair water, foam, carbon dioxide and dry chemical sprinkler systems in buildings for fire protection purposes.

OTHER TITLES: Marine Pipefitter, Fire Sprinkler Installer

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Pipefitter, Plumber

MAJOR SKILLS		Can do	Cannot do
Basic blueprint reading	Interpret drafting symbols	<input type="radio"/>	<input type="radio"/>
	Identify different types of drawing (architectural, mechanical, structural)	<input type="radio"/>	<input type="radio"/>
Pipe valves and fittings	Identify types and uses of valves, pipes and fittings	<input type="radio"/>	<input type="radio"/>
	Measure and assemble pipes and fittings	<input type="radio"/>	<input type="radio"/>
Rigging	Identify lifting equipment	<input type="radio"/>	<input type="radio"/>
	Identify ropes, cables and attachments	<input type="radio"/>	<input type="radio"/>
	Tie various knots	<input type="radio"/>	<input type="radio"/>
	Select and use correct safety harness	<input type="radio"/>	<input type="radio"/>
Wet and dry systems	Identify wet and dry systems	<input type="radio"/>	<input type="radio"/>
	Understand the operation of wet and dry systems	<input type="radio"/>	<input type="radio"/>
	Troubleshoot the system	<input type="radio"/>	<input type="radio"/>
	Repair and maintain the system	<input type="radio"/>	<input type="radio"/>
Valve stations wet and dry	Identify component parts of a wet and dry system	<input type="radio"/>	<input type="radio"/>
	Demonstrate functions of accelerators, excess pressure pumps, retard chambers, water motor cones, air supplier, fire department connections, and secondary water supply	<input type="radio"/>	<input type="radio"/>
	Trim a wet and dry valve station	<input type="radio"/>	<input type="radio"/>
Installation practices	Interpret and explain pipe elevation	<input type="radio"/>	<input type="radio"/>
	Field check to pre-establish job plan	<input type="radio"/>	<input type="radio"/>
	Use transit and laser levels	<input type="radio"/>	<input type="radio"/>
	Use a chalk line	<input type="radio"/>	<input type="radio"/>
	Define swing joints and centre of title installations	<input type="radio"/>	<input type="radio"/>
Stand pipe and hose systems	Interpret the NFPA 14 standard for installation purposes	<input type="radio"/>	<input type="radio"/>
	Understands installation procedures, e.g., anchoring	<input type="radio"/>	<input type="radio"/>
Residential and dwelling sprinklers	Understand the residential sprinkler provisions as compliant with the National Fire Protection Association (NFPA) standards	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Steamfitter/Pipefitter** (NOC: 7252)

DESCRIPTION: Steamfitters and Pipefitters lay out, assemble, fabricate, maintain, troubleshoot and repair piping systems carrying water, steam, chemicals and fuel in heating, cooling, lubricating and other process piping systems.

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Marine Pipefitter, Steamfitter

MAJOR SKILLS		Can do	Cannot do
Install and maintain propane and natural gas systems	Size pipes and install gas-fitted appliances	<input type="radio"/>	<input type="radio"/>
	Troubleshoot system	<input type="radio"/>	<input type="radio"/>
	Adjust burners	<input type="radio"/>	<input type="radio"/>
	Size and install vents	<input type="radio"/>	<input type="radio"/>
	Verify electrical connections	<input type="radio"/>	<input type="radio"/>
Solder and braze	Size and install combustion air ventilation	<input type="radio"/>	<input type="radio"/>
	Determine heat source	<input type="radio"/>	<input type="radio"/>
	Select materials – brazing, soldering, silver solder, fluxes	<input type="radio"/>	<input type="radio"/>
Use tools and equipment	Perform surface preparation	<input type="radio"/>	<input type="radio"/>
	Use precision measuring tools	<input type="radio"/>	<input type="radio"/>
Install and maintain power plant piping systems	Use power tools	<input type="radio"/>	<input type="radio"/>
	Identify steam generator equipment and functions	<input type="radio"/>	<input type="radio"/>
Familiarity with process application	Read and interpret schematic drawing	<input type="radio"/>	<input type="radio"/>
	Familiar with industrial applications	<input type="radio"/>	<input type="radio"/>
	Familiar with commercial applications	<input type="radio"/>	<input type="radio"/>
Assemble, install and maintain low pressure steam heating systems	Familiar with marine applications	<input type="radio"/>	<input type="radio"/>
	Identify types of boilers and heat exchangers	<input type="radio"/>	<input type="radio"/>
	Assemble and install low pressure boilers and trim	<input type="radio"/>	<input type="radio"/>
	Commission the system	<input type="radio"/>	<input type="radio"/>
	Troubleshoot the system	<input type="radio"/>	<input type="radio"/>
	Install and maintain steam traps	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Install and maintain hydroponics heating systems	Identify component controls	<input type="radio"/>	<input type="radio"/>
	Identify types of boilers	<input type="radio"/>	<input type="radio"/>
	Assemble and install hydroponics boilers	<input type="radio"/>	<input type="radio"/>
	Commission the system	<input type="radio"/>	<input type="radio"/>
	Troubleshoot the system	<input type="radio"/>	<input type="radio"/>
Fabricate piping and components	Make appropriate templates	<input type="radio"/>	<input type="radio"/>
	Prepare component for assembly	<input type="radio"/>	<input type="radio"/>
	Assemble components	<input type="radio"/>	<input type="radio"/>
Bend pipe and tubing	Determine bending procedure	<input type="radio"/>	<input type="radio"/>
	Calculate pipe length	<input type="radio"/>	<input type="radio"/>
	Use machining and hand bend pipe and tube	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Steel Fabricator** (NOC: 7263)

DESCRIPTION: Steel Fabricators lay out, fabricate, assemble, fit and install steel or other metal components for buildings, bridges, tanks, towers, boilers, pressure vessels and other similar structures and products. They work in structural steel, boiler and platework fabrication plants and heavy-machinery manufacturing and shipbuilding companies.

OTHER TITLES: Steel Fabricator, Plater, Plate Work Fitter, Ship Fitter, Structural Steel Fitter, Shop Boilermaker

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Boilermaker, Ironworker, Sheet Metal Worker

MAJOR SKILLS		Can do	Cannot do
Use trade tools	Use basic hand tools	<input type="radio"/>	<input type="radio"/>
	Use bench hand grinder	<input type="radio"/>	<input type="radio"/>
	Use and maintain portable power tools	<input type="radio"/>	<input type="radio"/>
Use shop equipment	Use power plate shears	<input type="radio"/>	<input type="radio"/>
	Use hydraulic brake press	<input type="radio"/>	<input type="radio"/>
	Use power plate rolls	<input type="radio"/>	<input type="radio"/>
	Use shop saws	<input type="radio"/>	<input type="radio"/>
	Use drill presses	<input type="radio"/>	<input type="radio"/>
	Use power angle rolls	<input type="radio"/>	<input type="radio"/>
Burn and weld metals	Describe safe burning practices	<input type="radio"/>	<input type="radio"/>
	Use oxy-fuel equipment	<input type="radio"/>	<input type="radio"/>
	Perform manual arc welding	<input type="radio"/>	<input type="radio"/>
	Familiar with selection of welding electrodes	<input type="radio"/>	<input type="radio"/>
	Weld plate using manual arc welding	<input type="radio"/>	<input type="radio"/>
	Use arc air gouging equipment	<input type="radio"/>	<input type="radio"/>
	Know methods to reduce distortion	<input type="radio"/>	<input type="radio"/>
Blueprint reading	Sketch objects using isometric projection	<input type="radio"/>	<input type="radio"/>
	Sketch objects using orthographic projection	<input type="radio"/>	<input type="radio"/>
	Understand standard symbols and abbreviations	<input type="radio"/>	<input type="radio"/>
	Understand welding symbols and abbreviations	<input type="radio"/>	<input type="radio"/>
	Interpret structural drawings	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Fabricate plate and structural projects	Know common fitting procedures	<input type="radio"/>	<input type="radio"/>
	Fabricate a multiple-joint pipe connection	<input type="radio"/>	<input type="radio"/>
	Describe laying out and fitting connections to a structural beam (cleats, base plate, bolt connections)	<input type="radio"/>	<input type="radio"/>
	Know the layout fabrication of a simple hopper	<input type="radio"/>	<input type="radio"/>
Develop plate patterns	Understand parallel line development	<input type="radio"/>	<input type="radio"/>
	Understand radial line development	<input type="radio"/>	<input type="radio"/>
	Understand triangulation development	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Tilesetter** (NOC: 7283)

DESCRIPTION: Tilesetters cover interior and exterior walls, floors and ceilings with ceramic, marble and quarry tile, mosaics or terrazzo. They are employed by construction companies and masonry contractors or they may be self-employed.

OTHER TITLES: Specialist in Mosaics or Terrazzo

MAJOR SKILLS		Can do	Cannot do
Planning and drawings	Read blueprints	<input type="radio"/>	<input type="radio"/>
	Use layout techniques	<input type="radio"/>	<input type="radio"/>
	Sketch and draw simple details	<input type="radio"/>	<input type="radio"/>
	Estimate materials	<input type="radio"/>	<input type="radio"/>
	Perform geometrical construction	<input type="radio"/>	<input type="radio"/>
Tools of the trade	Use and maintain hand tools	<input type="radio"/>	<input type="radio"/>
	Use measuring, levelling and layout tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain cutting and drilling tools	<input type="radio"/>	<input type="radio"/>
	Use and maintain mortar and other special tools	<input type="radio"/>	<input type="radio"/>
Preparation of surfaces	Prepare horizontal surfaces	<input type="radio"/>	<input type="radio"/>
	Prepare vertical surfaces	<input type="radio"/>	<input type="radio"/>
	Prepare circular surfaces and columns	<input type="radio"/>	<input type="radio"/>
	Prepare curved arches	<input type="radio"/>	<input type="radio"/>
	Prepare stairways	<input type="radio"/>	<input type="radio"/>
Tiling processes	Lay out tile	<input type="radio"/>	<input type="radio"/>
	Set tile on vertical surfaces	<input type="radio"/>	<input type="radio"/>
	Set tile on horizontal surfaces	<input type="radio"/>	<input type="radio"/>
	Tile circular walls and columns	<input type="radio"/>	<input type="radio"/>
	Use cleaning materials and protect ceramic tile after installation	<input type="radio"/>	<input type="radio"/>
Special material	Apply marble and marble mosaics	<input type="radio"/>	<input type="radio"/>
	Apply ceramic veneers	<input type="radio"/>	<input type="radio"/>
	Use glass block and tile	<input type="radio"/>	<input type="radio"/>



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MAJOR SKILLS		Can do	Cannot do
Specialized jobs	Tile fireplaces and fireboxes	<input type="radio"/>	<input type="radio"/>
	Tile swimming pools	<input type="radio"/>	<input type="radio"/>
	Tile ceilings	<input type="radio"/>	<input type="radio"/>
	Tile steam rooms	<input type="radio"/>	<input type="radio"/>
Fastening materials	Use Portland cement grout to fix tile	<input type="radio"/>	<input type="radio"/>
	Use acid- and alkali-resistant grout to fix tile	<input type="radio"/>	<input type="radio"/>
	Use grouts and their applications	<input type="radio"/>	<input type="radio"/>
	Use inserts and accessories	<input type="radio"/>	<input type="radio"/>
	Use types of backing for tile	<input type="radio"/>	<input type="radio"/>

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TRADE TITLE: **Welder** (NOC: 7265)

DESCRIPTION: Welders operate welding equipment to join ferrous and non ferrous metals using shielded metal arc, gas metal arc, fusion and braze welding using oxy-fuel process. Performs electric arc gouging and related processes and performs oxy-fuel cutting.

SIMILAR TRADES THAT HAVE SOME RELATED SKILLS: Electric Arc Welder, Aviation Welder, Technician, Submerged Arc Welder, Machine Operator, Spot Welder, Welder Fitter, Boilermaker Welder, Steel Fabricator Welder, Ship Building Welder

MAJOR SKILLS		Can do	Cannot do
Oxy-fuel cutting process	Select, assemble, ignite, shut down and maintain equipment	<input type="radio"/>	<input type="radio"/>
	Perform freehand and guided cuts on low carbon steel plate	<input type="radio"/>	<input type="radio"/>
	Use automatic and semiautomatic cutting machines	<input type="radio"/>	<input type="radio"/>
Fusion and braze welding using oxy-fuel processes	Identify filler metals, flukes and tips used for fusion and brazing	<input type="radio"/>	<input type="radio"/>
Shielded metal arc welding (SMAW)	Describe equipment and operation of machines	<input type="radio"/>	<input type="radio"/>
	Identify types of electrodes used on low carbon steel	<input type="radio"/>	<input type="radio"/>
	Describe basic weld joints	<input type="radio"/>	<input type="radio"/>
	Identify causes of weld faults and describe how to prevent	<input type="radio"/>	<input type="radio"/>
	Perform hard surfacing on low carbon steel	<input type="radio"/>	<input type="radio"/>
Electric arc cutting, gouging and related processes	Identify electric arc cutting and gouging equipment and its operation	<input type="radio"/>	<input type="radio"/>
	Gouge cut metals using air carbon arc	<input type="radio"/>	<input type="radio"/>
Gas metal arc welding (GMAW)	Know about GMAW equipment and its operation	<input type="radio"/>	<input type="radio"/>
	Know about and identify electrode wires and shielding gases	<input type="radio"/>	<input type="radio"/>
	Perform fillet and groove welds on low carbon steel	<input type="radio"/>	<input type="radio"/>
	Perform fillet and groove welds on aluminum	<input type="radio"/>	<input type="radio"/>
Flux-cored arc welding (FCAW) and metal-cored arc welding (MCAW)	Know about the FCAW and MCAW equipment and its uses	<input type="radio"/>	<input type="radio"/>
	Identify and select electrode wires and shielding gases for FCAW and MCAW	<input type="radio"/>	<input type="radio"/>
	Weld fillet and groove welds on low carbon steel	<input type="radio"/>	<input type="radio"/>
Welding drawing	Identify common welding symbols	<input type="radio"/>	<input type="radio"/>
Handling and rigging procedures	Use wire and fibre rope	<input type="radio"/>	<input type="radio"/>
	Use slings	<input type="radio"/>	<input type="radio"/>
	Use hoisting equipment	<input type="radio"/>	<input type="radio"/>
	Use rigging hardware	<input type="radio"/>	<input type="radio"/>

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