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Human Resources and

Skills Development Canada

**Essential Skills and Apprenticeship** 

# **Essential Skills for** Success as a Welder

Welders use Essential Skills to complete trade-related tasks. Use this fact sheet to:

- learn how Essential Skills are used on the job;
- find out the skills you need to succeed in your trade; and
- help prepare yourself for your career.



### Reading



- Read company policies to understand procedures, such as requesting time off.
- Read codes and specifications to prepare for welding projects.
- Read equipment and safety manuals describing safe operating procedures.
- Read and follow detailed welding procedures developed by governing bodies, such as the Canadian Welding Bureau.

#### **Document Use**



- Examine lines and colours of pipes in the workplace to determine their contents, such as the type of gas they contain.
- Use checklists to learn and follow proper work procedures and safety guidelines, such as how to properly rig a load.
- Identify the capacity of rigging by referring to the markings on the equipment.
- Compare colour coding on metals to a colour code chart in order to identify its grade and alloy.
- Complete invoice forms or reports for employers showing tasks completed, materials used, hours worked and how much to charge customers.
- Complete timesheets.
- Review notes on blueprints from the engineering department about materials and procedures.
- Interpret diagrams and tables on blueprints to determine engineering requirements.



### **Numeracy**



- Measure degrees of angles by using a level with a digital readout.
- Check bills to ensure the amount of materials received is accurate.
- Estimate the weight of a load for rigging by considering its size and density.
- Calculate materials and labour charges on invoices for clients.
- Calculate how much materials will be needed for a structure prior to ordering.
- Calculate the volume, diameter and circumference of tanks when fabricating pieces for them.
- Use trigonometric constants to calculate diagonal distances.

## Writing



- Write invoices or reports for employers with tasks completed, materials used, the hours worked and how much to charge customers.
- Write a daily log.
- Complete accident and incident reports for the Workers' Compensation Board.
- Write safety guidelines to demonstrate how to properly operate company equipment.

#### Oral Communication



- Give directions to truck drivers picking up and dropping off materials.
- Talk to tool room staff to ask for tools, supplies and personal protective equipment.
- Discuss work assignments with a supervisor to understand expectations.
- Compare measurements and calculations with a partner when building a structure.
- Share ideas about tasks and safety issues at production meetings.
- Explain welding designs to customers and help them understand why structures were built in a certain way.

#### Working with Others



- Work independently.
- Work with fitters, other welders and supervisors to coordinate tasks on a project.
- Orient new employees.
- Inform and demonstrate how to perform tasks to other workers.
- Participate in formal discussions about work processes or product improvement.

## Thinking



- Decide where to place rigging equipment when preparing a load for transportation.
- Find and report problems with blueprints, such as measurements that do not add up.
- Identify the type of electrode by looking at the specifications printed on its side or packaging.
- Change the weld sequence to minimize distortion, considering factors such as heat input and the type of material being used.
- Decide when and how to control the temperature during the welding process to avoid cracking.
- Decide on the most efficient use of materials during construction to minimize waste.
- Look up specifications for welding procedures on data sheets.

## Computer Use



• Operate plasma cutting machines, orbital welders and other computer-controlled equipment.

## Continuous Learning



- Retake practical tests periodically.
- Attend information sessions to learn about new products, such as grinding wheels and welding rods.
- Complete company-specific training.
- Pursue learning on own time.

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