Now and Tomorrow **Excellence in Everything We Do**

Essential Skills and Apprenticeship

Essential Skills for Success as a Steamfitter-Pipefitter

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

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

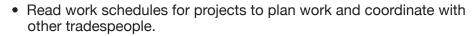


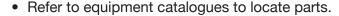


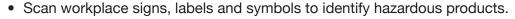


- Read minutes of project meetings or memos.
- Read equipment warranties to understand what kind of situations can make them invalid.
- Read manufacturers' manuals and instructions for technical information on equipment and fittings.
- Read, interpret and refer to multiple professional codes such as the Construction Security Code or High Pressure Welding Code to verify that processes meet industry requirements while ensuring safety for workers.

Document Use







- Consult the Pipefitters' Handbook for information on measurement, type of materials, pipe sizing and mathematical formulas for calculations required.
- Refer to and read tables in high-pressure vessel manuals to confirm the required temperatures, pressure and expansion.
- Interpret and take measurements from three-dimensional (3D) mechanical drawings to identify how to install equipment, review specifications and extract information to make calculations.
- Interpret schematic diagrams, 3D drawings and architectural plans to understand the routing of piping through conduits and to identify possible interferences.





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Numeracy



- Use a plumb bob to centre a pipe over a hole.
- Convert length measurements from International System of Measures (SI) to imperial measurement system and vice-versa.
- Use mathematical calculations to determine the expansion or contraction of piping material to decide if an expansion loop or joint is required to minimize stress on the piping system.
- Take and compare several pressure readings to calculate flow through the system when conducting and performing tests on the system to ensure it has the correct pressure.
- Take pressure and temperature readings to determine if equipment is performing well or if balancing is required.
- Calculate the volume of piping to determine measurements such as the quantity of anti-freeze required to be added in the system.
- Use trigonometry to calculate offsets and rolling offsets when installing fittings in piping systems.

Writing



- Complete forms to request materials.
- Write lists of all materials and fittings needed for a job.
- Keep a daily log to record measurements and reminders.
- Write incident or accident reports in the event of workplace injury.

Oral Communication



- Interact with co-workers and supervisors at project meetings to discuss problems.
- Talk to contractor or supervisor to obtain information about deadlines, to raise safety issues and/or inform of potential delays.
- Interact with other steamfitter-pipefitters working on different systems to coordinate and ensure the two systems meet at the same correct location.
- Talk with Technical Standards and Safety Authority (TSSA) representatives once a system is finished to ensure it meets certification requirements.
- Communicate with other tradespeople to coordinate tasks or make requests.
- Talk to engineers to discuss a potential problem and identify a solution.

Working with Others



• Interact with supervisors, colleagues and other tradespeople to coordinate tasks or to make requests.

Thinking



- Identify the tools required to move large pieces of equipment in small spaces.
- Decide how to organize tasks most efficiently.
- Decide how to configure pipes when only flowcharts are available and there are no diagrams.
- Determine how to correct errors such as a pipe that has been incorrectly measured.
- Determine how to coordinate jobs with other tradespeople working on the same project.
- Decide how to relocate piping when there is interference with another system.
- Identify reasons for pipe failure and determine the proper course of action to repair the situation.

Computer Use



- Use a spreadsheet to keep track of materials.
- Use computer-assisted design software to input measurements taken on the job site to generate drawings.
- Use the Internet to look up material information or order materials online.

Continuous Learning



- Participate in workplace training and refresher courses for safety procedures.
- Keep up-to-date with the regulatory requirements and the various codes that are periodically revised.
- Keep up-to-date with technological advances to be able to select the most appropriate equipment and materials to perform proper installations.

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For more information on the Interprovincial Standards Red Seal Program, visit

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