



More skills ... more opportunities

Professional Skills Record

Steamfitter/Pipefitter

NOC 7252

ACKNOWLEDGEMENTS

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This project is the result of the collaboration of the following dedicated adult educational consultants in Prince Edward Island:

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Our sincere thanks to the *Trade Essentials Advisory Committee* for their suggestions, input and ongoing support.

We also recognize the valuable contribution made by the apprentices and challengers who volunteered to participate in this research project. It is our sincere hope that they have gained as much from their participation as we have. We also hope that their contributions will assist many more tradespeople to reach their goals.

We are grateful to the assessors, tutors and classroom instructors who patiently piloted our materials and who gave back invaluable insights and advice.

All Trade Essentials materials have been validated by teams of tradespeople who hold Certificates of Qualification, Red Seal Endorsement. We gratefully acknowledge the crucial contribution made by the following team members:

Glenn Ellsworth (Automotive Service Technician)
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Vincent Jenkins (Welder)

Thanks to the Apprenticeship Section of the PEI Department of Innovation and Advanced Learning and to the government of Canada's Pan-Canadian Innovation Initiative for financial assistance and for continuing support to trades and apprentices in Canada.

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This handbook is designed to help skilled trades Journeypersons manage the skills and learning of their Apprentices who are using a Professional Skills Record.

1 Why Do I Need this Handbook?

Eighty percent of all learning in a trade happens on the job. This means the apprentice has the responsibility to learn and you, as their journeyperson, have the responsibility to mentor and teach.

Signing off for the learning an apprentice has completed under your supervision is a huge responsibility. With all the skills needed in a trade, it is important that both you and the apprentice have a tool to help you record and sign off on that learning.

2 But We Have Logbooks

When a tradesperson registers as an apprentice in most provinces or territories in Canada, they are given a Logbook.

A Logbook:

- is issued by the apprenticeship authority within a jurisdiction
- is created from the National Occupational Analysis (NOA) in a trade
- is a list of all the general skill areas (**Blocks and Tasks**) in a trade
- records an apprentice's progress in the general skill areas of a trade
- is signed off by a journeyperson to guarantee that an apprentice is performing these tasks to Industry Standard.

A Logbook lists the Blocks and Tasks from the NOA **but** the Interprovincial Red Seal exam and trades training courses in colleges and trade schools use **all** the information in the NOA. This includes the Blocks, Tasks, **Sub-tasks and the Knowledge and Abilities** listed in the NOA.

Each apprentice needs a tool that lists **all** the skills and learning they need in their trade career. Then, if they have one employer or several employers over their entire term of apprenticeship, both the apprentice and the journeyperson know what learning has been completed:

- the journeyperson knows what skills they are signing off to verify what has been taught; and
- the apprentice knows what they need to learn to be successful in their Red Seal exam.

3 What is a National Occupational Analysis (NOA)?

The Canadian Council of Directors of Apprenticeship, which is made up of managers and directors of apprenticeship from every province and territory in Canada, guides a Human Resources and Skills Development Canada (HRSDC) sponsored program to develop NOAs.

Under this partnership, joint planning committees made up of tradespeople who have a Certificate of Qualification, Red Seal endorsement from each province and territory in Canada, come together in Ottawa every four to five years to review and revise the NOA in all of the 45 skilled trades.

Each NOA is accepted as the national standard in that trade. The NOA is then used to:

- identify and group tasks performed by skilled workers in each trade in every province and territory in Canada
- group these tasks by Blocks, Tasks, Sub-tasks, Knowledge, Skills and Abilities (also called "**competencies**") required in a trade
- give information on the breakdown of questions from all sections of the NOA in the Interprovincial Red Seal exam
- create all the questions for the Red Seal exam
- create curriculum for trade school programs and Block Release/Period/Level* programs in a trade.

* *The in-school portion of apprenticeship has several names across Canada. In some provinces and territories it is called Block Release, in others it is called Period Training or Level.*

4 If there is an NOA, why do we need a Professional Skills Record (PSR)?

The NOA is designed to be used for creating curriculum and for developing test questions for the Red Seal exam.

The PSR is designed to be used by an apprentice and a journeyperson in the workplace. The PSR provides a fair and objective assessment tool to record the apprentice's learning and skills.

The PSR has been developed **with** apprentices during a three-year research project on PEI called Trade Essentials. Recommendations made by the apprentices who tested the tool have been built into the document.

The PSR was then validated by teams of tradespeople who have a Certification of Qualification, Red Seal endorsement in each trade who came together and discussed what an apprentice is expected to learn from their journeyperson in the workplace.

The apprentice has the main responsibility for completing the PSR. It is designed as a self-assessment tool so the apprentice can keep track of his/her skills and learning and make plans to fill any technical skills training gaps.

The PSR takes information from the NOA and:

- lays it out in a chart
- lists the percentage and number of questions for the Red Seal exam from each task on every page
- takes the skills from the NOA and describes them in terms of what a tradesperson does on the job, for example:
 - In the **NOA**, the skill says – “knowledge of blueprints and drawings”
 - In the **PSR**, the skill says – “read and interpret blueprints and drawings”
- has a rating chart so the apprentice can judge his/her level of learning and have it all recorded for you to review
- provides you, the journeyperson, with a tool to discuss details of an apprentice's skill areas that are great and areas that may need to improve
- helps the apprentice make a plan so he/she can improve skills
- helps you know what skills you still have to teach the apprentice.

5 Am I expected to teach all the skills in a PSR?

No. A PSR contains **all** the skills and learning a tradesperson has to learn over all their years as an apprentice. You, as their journey person, can help make this tool useful by completing the sign-off on the learning and skill you know they have. Some of the ways you can assess the skills your apprentice has are:

- **OBSERVATION** – you watch them use their knowledge, skills and abilities or competencies to perform a task or sub-task

For example, you ask them to select a tool for a specific job, then watch them use that tool to do a task.

- **INTERVIEW** – you have a discussion with your apprentice to find out if they can demonstrate an understanding of what they are doing

For example, you ask them to tell you about any safety precautions that have to be followed before they start a certain task.

- **DOCUMENTATION** – an apprentice may have a document that provides proof of skills they already have. You can use the PSR to sign-off on tasks the document covers. The document or certificate could be from:

- another employer,
- a trade school or college,
- an industry training course,
- another province or territory,
- or even from another country.

For example, you need all your employees to be trained in WHMIS. A new apprentice you just hired shows you a WHMIS certificate he/she have from a job they were working on a couple of months ago in northern Canada.

Apprentices will also tell you, through their self-assessments, the best way they think they can prove the skills they have. This can help guide you, as their mentor, to choose a way to assess your apprentice that works best for both of you.

6 Are there any tips on how to be a good mentor to my apprentice?

Mentoring has always been the foundation of apprenticeship. In trades, a mentor is a person who has a great deal of learning and skills from experience in a trade who helps a less experienced person by guiding, teaching and sharing their skills and learning.

Along with having learning and experience in their trade, the most successful mentors are:

- **Patient** - and understand the apprentice needs time to learn and practise their skills to become as good as their mentor.
- **Organized** - and set a schedule to meet regularly with their apprentice to track their learning and make plans for new learning.
- **Positive** - and supportive in helping an apprentice tackle new learning and encourage them to keep working on skills they find difficult to learn.
- **Respectful** - so that other employees in the workplace accept the apprentice and are willing to help and encourage the new apprentice.

As a mentor, you are a role model for your apprentice. To create a successful relationship between you and your apprentice you can:

- **Lead by example.** If you set safety and quality assurance as firsts on your list each and every day, so will your apprentice.
- **Build trust.** If you want your apprentice to trust and respect you, you can show trust in them by assigning them some responsibility as soon as you see an opportunity.
- **Communicate.** Communication is a two-way street. Be willing to listen as you give directions and be available to your apprentice when they need you. Always treat every question seriously. If your apprentice has the confidence to ask, it is important to give a respectful answer.
- **Be reliable.** Your apprentices need to know they can depend on you when they run into a problem. Create supportive relationships with other employees so if you are away from the workplace, your apprentice feels confident in approaching another employee for help.

6.1 Tips

- **Give clear instructions.** When assigning a task and giving direction, give step-by-step instructions, then ask your apprentice to repeat the instructions. This gives them the opportunity to ask questions on things that might not be clear to them.

Checklist for giving instructions:

- ✓ **explain the task**
 - ✓ **show them how it is done**
 - ✓ **answer their questions**
 - ✓ **oversee the work**
 - ✓ **give them time to practise**
 - ✓ **give feedback on how they are doing**
 - ✓ **take time to show them how to do the task better**
- **Give feedback.** Giving feedback often helps your apprentice to have a clear understanding of what you want them to do and how you want them to perform. The PSR helps you to give feedback because each knowledge, skills and ability (competency) statement is clear.

There are three types of feedback that work best in the workplace:

Positive feedback means you want your apprentice to continue what they are doing. People are motivated by hearing they are doing a good job. They usually do more and try harder.

Constructive feedback means you want your apprentice to change how or what they are doing. Offering support and guidance to your apprentice to make the changes you need usually brings the best results.

Direct feedback focuses on what you have seen, not on secondhand information. Focus on how the apprentice is doing and what you have planned for them to do.

- **Give your apprentice experience in many skills.** Sometimes apprentices end up performing the same set of skills over and over again because they are really good at them. They are required to learn the scope of the entire trade during their apprenticeship. If you have the capability, it would be helpful to take advantage of the opportunity to cover a wide range of skills by moving your apprentice from one set of skills to another on a regular basis.
- **Track and Document learning.** Every employer cannot offer an apprentice training in every skill in a trade because each workplace is unique. Some workplaces are specialists in one area of a trade.

As a journeyperson, you have the responsibility to sign off on the skills your apprentice learns under your guidance in your workplace. A PSR can help you identify those skills.

Setting a regular review date once every month or two, and keeping that time just for you and your apprentice, can increase their scope in their trade and increase their knowledge which will be an asset in the workplace.

This meeting time gives you the best opportunity to:

- monitor your apprentice's progress,
- make a plan with him/her to learn more skills, and
- find out if there are any problem areas where he/she may need help.

Regular meeting dates also help your apprentice to be prepared and able to track his/her learning. This can be done by using a Professional Skills Record (PSR).

7 So how do I use a Professional Skills Record (PSR) with my apprentice?

The PSR is laid out in a chart. Each skill your apprentice has to learn has an action word to tell them how they are supposed to perform a skill. It gives you a level you can use to judge whether they are performing that skill properly. **Industry standard** is the term used to describe when your apprentice can complete a task to the level and quality of performance required by industry without assistance or supervision.

When you see the words "demonstrate an understanding of," you may find it easier to ask them questions about the skill to make sure they know what they are doing.

**PROFESSIONAL SKILLS RECORD (PSR)
JOURNEYPERSON'S HANDBOOK**

Your apprentice has the responsibility to complete the "Knowledge, Skills and Abilities – Competencies" section.

When you are sure your apprentice has proven to you they have completed the learning they say they have, you verify it by initialing the sub-task.

Trade Name
IP Exam – 125 Questions
BLOCK A
5% - 6 questions on the IP
<u>Learning Category</u>
OCCUPATIONAL SKILLS
Task 1 – A
3 questions on the IP exam
<u>Learning Outcome</u>
Uses and maintains tools and equipment
Journeyman Sign-off
Task 1
Complete <input style="float: right; width: 30px; height: 15px; border: 1px solid black;" type="checkbox"/>
Incomplete <input style="float: right; width: 30px; height: 15px; border: 1px solid black;" type="checkbox"/>



Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.01	1.01.01 Identify boring tools	1.01.02 Identify hand cutting tools
<u>Learning Objective</u> Uses hand tools	Rating ___ Complete Proof ___ Use ___ <input style="width: 20px; height: 15px; border: 1px solid black;" type="checkbox"/>	Rating ___ Complete Proof ___ Use ___ <input style="width: 20px; height: 15px; border: 1px solid black;" type="checkbox"/>
JP Sign-off ___		



When your apprentice proves to you that he/she has finished enough sub-tasks to have a good grasp of the task, you verify that learning by initialing "complete".



If your apprentice has not completed enough sub-tasks or you do not agree with the ratings they have given themselves, initial "incomplete".

<p>Task I Learning Needs</p> <p>Sub-Tasks <u>Learning Objectives</u> to be completed Comments</p>
--



If you have any sub-tasks you want your apprentice to work on, list them in this section and add any comments you have.

You might

- set a timeframe when you want these skills to improve
- suggest some manuals they could read
- suggest they go to their local college or training school for technical skills help
- suggest they go for help to an adult education facility if they need any academic help, for example, help in math or help in using the code book.

You have now created a learning plan for your apprentice using a PSR.

Your apprentice can then begin working on these sub-tasks or follow up on suggestions you have made to help them be successful in their trade career. By using a PSR, you now have a documented, written performance review that you can use in later sessions with your apprentice.

The PSR can help you give a fair assessment of your apprentice's ability to perform each technical skill task. If you are assigned an apprentice from another employer, province, territory or country, you can use the PSR to review his/her skills so you do not waste your valuable time teaching them skills they already know and can do.

PROFESSIONAL SKILLS RECORD

A tool for recording and recognizing skills and learning of trade apprentices

Steamfitter/Pipefitter

NOC 7252

A project of:
The Province of PEI
and
Human Resources and Skills Development Canada



Human Resources and
Skills Development Canada

Ressources humaines et
Développement des compétences Canada

The **Professional Skills Record (PSR)** is a technical skills assessment tool designed to be used in the workplace by an apprentice and a journeyperson. The PSR has taken the content from the National Occupational Analysis (NOA) and arranged it so apprentices can use it to measure their progress in their trade from the time they sign up for apprenticeship through to Red Seal certification.

This PSR has been through a validation process with a team of trade professionals with Certificate of Qualification, Red Seal endorsement, who reached agreement on the wording of each and every knowledge and skill (*competency*) to make it measurable.

The PSR was originally designed as a tool to help apprentices move through a Recognition for Skills and Learning (RSL) process so they can receive recognition for skills they have, no matter where they learned them. Through completion of a PSR, they can avoid relearning what they already know and can do by entering the apprenticeship Block/Period/Level in-school process at a higher level. For example, move directly into Block/Period/Level three rather than relearning Block/Period/Level One and Two.

Feedback from testing and validation of the PSR has opened many new possibilities for using this tool. The PSR can be used:

- as a tool for valid assessment in a Recognition for Skills and Learning (RSL) process
- as a tool that new Canadians and people planning to emigrate can use, to assess their skills against Canadian standards, receive recognition for skills they already have and, if necessary, make a plan to fill any technical skill gaps they may still have
- in the secondary-school system and in post-secondary trades training so students can know the full scope of the trade they are entering
- as a tool to guide journeypersons while they are mentoring apprentices so they are aware of all the skills apprentices need to learn to be fully competent in their professional trade designation.

INFORMATION SITES:

PROJECT

SITE

CANADIAN

RED SEAL SITE

www.tradeessentials.ca

www.red-seal.ca

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Steamfitter/Pipefitter Trade Information

Name: _____ Full Address: _____
Email Address: _____
Phone: Home _____ Work _____ Cell _____

Technical Skills Journeyman Assessor/s

Name: _____ Business Name: _____
Phone: Home: _____ Work: _____ Cell: _____ Business Address: _____
Email Address: _____

Name: _____ Business Name: _____
Phone: Home: _____ Work: _____ Cell: _____ Business Address: _____
Email Address: _____

Name: _____ Business Name: _____
Phone: Home: _____ Work: _____ Cell: _____ Business Address: _____
Email Address: _____

Apprenticeship Program Start Date: _____ Completion Date: _____ Red Seal Certification Date: _____

Apprenticeship Training Officer:

Provincial/Territorial Apprenticeship Manager:

Signature: _____

Signature: _____

Province/Territory: _____

Professional Skills Record (PSR) Development

Professional Skills Record (PSR)

The Professional Skills Record (PSR) is designed as a tool of assessment. Learning and skills are validated through the PSR when they are signed off by a journeyperson in the trade in which the apprenticeship is being served.

All skills and learning assessed in this PSR are measured against the standards listed in the National Occupational Analysis (NOA). The NOA is recognized by the Canadian Council of Directors of Apprenticeship (CCDA) as the national standard for the occupation of Steamfitter/Pipefitter.

PSR Steamfitter/Pipefitter Document Validation

To conduct a reliable assessment through a formal recognition process, skills and learning statements must be measurable. To assess skills and learning using a PSR in the trades, the Knowledge, Skills and Abilities listed in the NOA have been made into measurable competency statements by adding an “action word.” This action word describes the skill and learning level which must be reached by an apprentice on the job in order to meet industry standards. Each PSR has been validated by a trades team, all of whom hold a Certificate of Qualification with Red Seal endorsement, and who reached consensus on each action word used in every knowledge, skill and ability statement.

Where Technical Trade Learning Happens

This Professional Skills Record (PSR) records and recognizes directly related trade technical skills and knowledge learned through:

- **Formal Learning** – structured learning that occurs in formal education and training institutions (for example, high school, trades school, apprenticeship programs, registered union and industry training programs)
- **Non-formal Learning** – learning that happens through planned, structured training or education outside the formal education system (for example, workshops, seminars, community school)
- **Informal/Experiential Learning** – learning that results from experience, occurs outside a structured environment, and is controlled by the learner (for example, experience on-the-job, volunteer work, self-study and life experiences). Informal or experiential learning must be current and essential to the trade.

Definitions: Adopted and/or interpreted from Work-related Informal Learning: Research and Practice in the Canadian Context, CAPLA 2008

Academic Trade Requirement

Trade Designation: Steamfitter/Pipefitter National Occupational Classification (NOC) 7252

One of the following prerequisites must be met before writing the Interprovincial Red Seal exam: an academic Grade 12 certificate or a General Education Diploma (GED) or successful assessment in the following Essential Skills.

Essential Skills common to all trades are listed in Appendix B of this document. Specific Essential Skills for the Steamfitter/Pipefitter trade are listed on the Red Seal website: www.red-seal.ca. (Once on that site, you will find the Essential Skills profiles under “National Occupational Analysis.”)

Prior Learning Assessment and Recognition (PLAR). . . Recognition for Skills and Learning (RSL)

PLAR is a formal recognition process in which a variety of tools are used to help people identify, demonstrate and receive recognition for skills and learning they have from the workplace, educational institutions, credentialing organizations or regulatory bodies.

The **Professional Skills Record (PSR)** is a tool designed to assist a trades apprentice to record skills and learning, and then receive recognition for the skills and learning through a PLAR trades process called:

RECOGNITION FOR SKILLS AND LEARNING (RSL)

Traditionally, 80% of learning in a trade happens in the workplace. Through a **Recognition for Skills and Learning (RSL)** process, an apprentice can advance in a trade when they prove they have the required hours, skills and learning for that trade. Proof of skills and learning is **recorded** by the apprentice in a **PSR** and **verified** when signed-off by a journeyman in that trade.

Through the completion of a **PSR**, an apprentice can avoid relearning what they already know and can do. Through an **RSL** process, a trade apprentice can submit a PSR for assessment to:

- advance in Block/Period/Level in-school training by not having to complete a Block/Period/Level in which proof is provided that skills and learning have already been achieved for that Block/Period/Level.
- transfer common skills from one trade to another - **Skills and learning must be transferred prior to writing the Interprovincial Red Seal exam. The same skills and learning cannot be recognized toward certification in two trades.**
- compare skills and learning in a trade from another country to Canadian standards (**as stated in the National Occupational Analysis**) and receive recognition for the skills and learning that meets Canadian standards.

The following assessment indicators (Rating, Proof, Use) have been developed to help record and then assess skills and learning in accordance with the standards of the trade outlined in the National Occupational Analysis (NOA).

Assessment Standard ONE		
Rating: Self-assessment performance rating in the workplace		
Workplace Performance	Rating	Examples of Workplace position/s
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to meet or shorten task timelines - beyond the expected level and quality of performance required by industry - can manage, lead and train others to perform this task and series of sub-tasks 	6	Journeyman with a Certificate of Qualification, Red Seal endorsement and/or Gold Seal tradesperson who is an expert in their field <ul style="list-style-type: none"> - Project Manager/Foreman - Highly skilled and experienced Manager/Supervisor - Expert who comes from industry to serve as an instructor in a trades training program
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to meet or shorten task timelines - to the highest level and quality of performance required by industry - take the initiative to respond to unexpected situations when they arise and supervise others 	5	Highly skilled and experienced journeyman with a Certificate of Qualification, Red Seal endorsement to whom co-workers turn for direction and help
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to meet task timelines - to the highest level and quality required by industry without supervision 	4	Experienced, skilled journeyman with a Certificate of Qualification, Red Seal endorsement
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to the level and quality required by industry without assistance or supervision 	3	Newly certified journeyman with a Certificate of Qualification, Red Seal endorsement
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to the required level and quality of performance with direction, some assistance and supervision 	2	Apprentice working under the direction of a journeyman with a Certificate of Qualification, Red Seal endorsement
Can perform this task and series of sub-tasks: <ul style="list-style-type: none"> - to the required level and quality of performance with assistance and constant supervision 	1	A helper or new apprentice who must work directly under the constant supervision of a journeyman with a Certificate of Qualification, Red Seal endorsement

Proof: Self-assessment options to prove skills and learning have been achieved

Type of Proof – Observation ... Interview ... Documentation

Observation

When you choose “Observation” to prove that you can perform a task, the person who verifies your work must be Red Seal certified in the trade in which you are an apprentice.

Interview

When you choose “Interview” to prove that you can perform the task, the person who verifies your work must be Red Seal certified in the trade in which you are an apprentice. In the case of a panel, at least one person on the panel must be Red Seal certified in the trade in which you are an apprentice.

Documentation

When you choose “Documentation” to prove that you can perform a task, the document must be from a certified training school or from an industry training course. Course content must be part of the requirements of your trade. If the document is from another country, it must be verified as equivalent to Canadian requirements in the trade.

NOTE: Gather all your documents and keep them with your PSR.

Assessment Standard THREE

Use: Self-assessment rating to help make a plan for additional learning and skill updates needed to be successful in achieving goals in a trade

Use of Knowledge, Skills and Abilities – 1 Daily 2 Often 3 Seldom 4 Never

Show how often you use a skill. This will help you to know:

- ◆ what skills you do well because you do them on a regular basis
- ◆ what skills you have to update if you want to transfer to another employer or move to another province or territory
- ◆ what skills you have to get from a training school, industry program or other employer

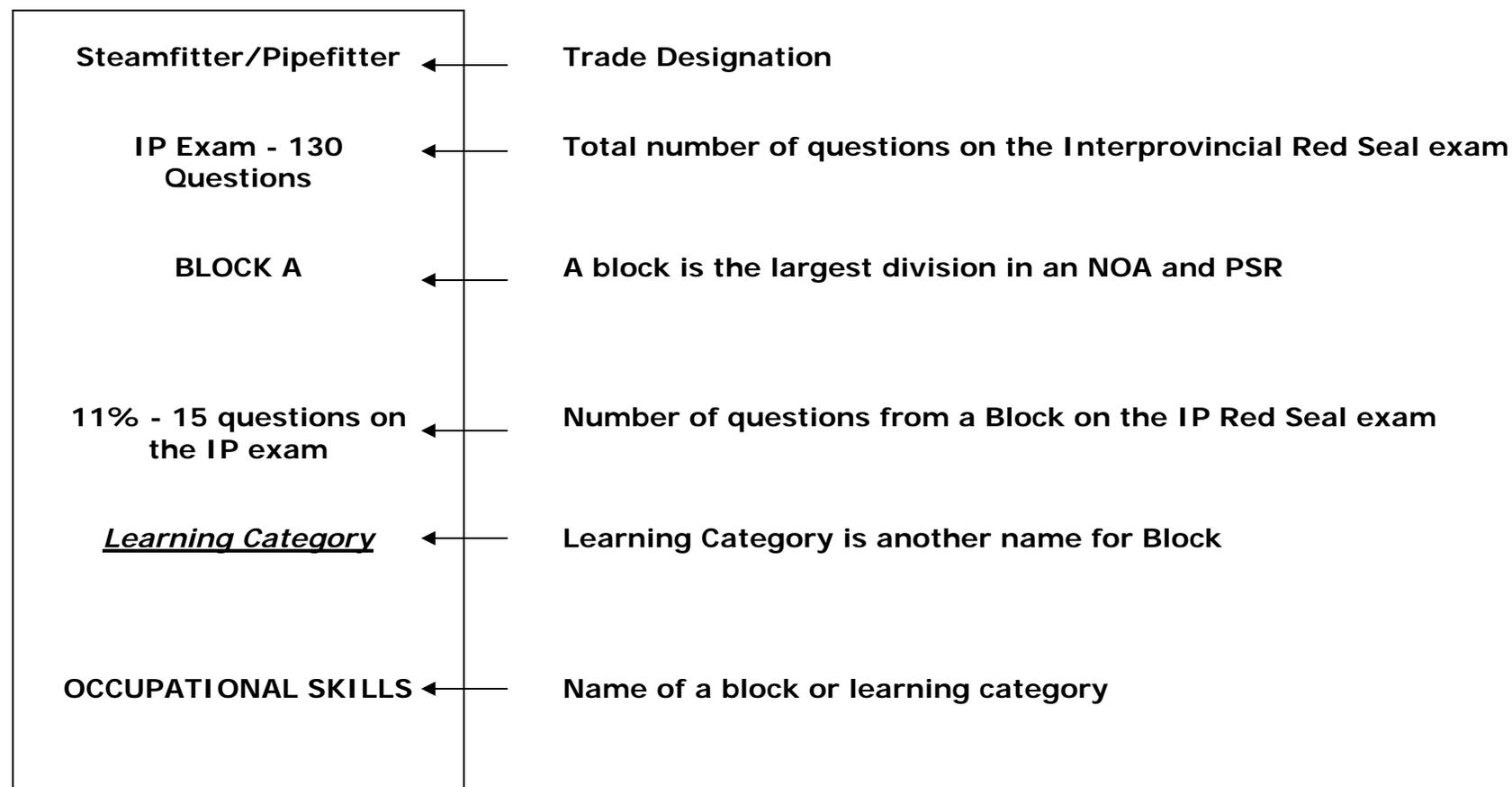
Completing this PSR can help you:

- ◆ know the full scope of your trade by exploring all the technical skills in your trade
- ◆ highlight the skills you already have
- ◆ identify any gaps that you may have to fill so you can be successful in writing your Interprovincial Red Seal certification exam
- ◆ create a plan you can follow to fill these technical skills gaps

Professional Skills Record (PSR) Components

Information from the National Occupational Analysis (NOA) is the foundation document for the Professional Skills Record (PSR). The PSR has been designed so that information is easily found to help a trade apprentice take control and direct his/her own individual skills and learning path.

Information in the PSR includes:



Professional Skills Record (PSR) Components (cont'd)

Task 1 – A

8 questions on the IP exam

Learning Outcome

Uses tools and equipment

- Task Number and Block/Category (letter number)
- Number of questions on the IP Red Seal exam from the task
- Learning Outcome is another name for a task
- Task or learning outcome description

Journey person
Sign-off
Task 1

Complete

Incomplete

- Journey person's initials verify that an apprentice can perform the task to industry standards.
- Journey person's initials indicate "incomplete" when the apprentice requires more work because the task is not being performed to industry standards.

Professional Skills Record (PSR) Set-up (cont'd)

Task 1
Learning Needs

Sub-Tasks
Learning Objectives

To be completed
 Comments

Journeyman lists any Sub-Tasks (Learning Objectives that an apprentice must improve before they can have their Task (Learning Outcome) signed off).



When completed, this column becomes a learning plan for the apprentice.

Sub-Task
1.02

Learning Objective

Uses power tools

JP Sign-off _____

← Sub-Task Number

← Learning Objective is another name for sub-task

← Sub-task or learning objective description

← Journeyman assesses and signs off when the apprentice can perform a sub-task or learning objective to industry standard

How to Self-Assess Skills and Learning Using a PSR

For easier use, the self-assessment charts have been shortened into an assessment key which is located at the top of each two-page section in a PSR. The “3” rating is considered “Industry Standard.”

- RATING:**
- 6 - Expert perform a task beyond expected level and quality of performance, lead and/or teach others
 - 5 - Highly skilled perform a task to the highest level and quality of performance, supervise others
 - 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 - 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
 - 2 - Complete a task with some assistance and supervision
 - 1 - Complete task with assistance and constant supervision

TYPE OF PROOF: O - Observation I - Interview D - Documentation

USE: 1 – Daily 2 – Often 3 – Seldom 4 - Never

How to Record Skills and Learning Using a PSR

Self-assessment takes place where the learning of skills takes place in each of the Knowledge, Skills and Abilities. (Knowledge, Skills and Abilities can also be called Competencies).

1.02.01

Identify types of power tools such as electrical, pneumatic, hydraulic and powder-actuated tools

← Skill and Learning that must meet industry standard.

Rating 5

← Choose and insert a number from the RATING key that best describes your level of performance in the workplace.

Proof I

← Choose and insert a letter from the PROOF key that indicates your best choice to provide proof that you have this knowledge, skill and ability in the trade.

Use 2

← Choose and insert a number from the USE key that indicates how often you use the knowledge, skills and ability (competency).

Complete



← Insert a check mark in the box to indicate completion of the competency to industry standard.

Tips to making sure you get recognition for all your skills and learning:

- take your **time** when you are working on your PSR
- do not try to complete **too much** at any one time
- be **fair and honest** with yourself; remember, this is a **self-assessment** tool
- **focus** on each task (*learning outcome*) and sub-task (*learning objective*)

**Steamfitter/Pipefitter
IP Exam - 130 Questions**

BLOCK A
11% - 14 questions on the
IP exam

Learning Category
OCCUPATIONAL SKILLS

Task 1 - A
8 questions on the IP
exam

Learning Outcome
**Uses tools and
equipment**

Journeyman
Sign-off
Task 1

Complete

Incomplete

**Task 1
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.01 <u>Learning Objective</u> Uses hand tools JP Sign-off ____	1.01.01 Identify types of hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.02 Demonstrate hand tool operating procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.03 Recognize limitations of use of hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.04 Select hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.05 Maintain hand tools by cleaning, lubricating and sharpening Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.01.06 Store hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.07 Identify worn, damaged or defective hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.08 Apply hand-eye coordination and mechanical dexterity Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 1.02 <u>Learning Objective</u> Uses power tools JP Sign-off ____	1.02.01 Identify types of power tools such as electrical, pneumatic, hydraulic and powder-actuated tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.02 Demonstrate power tool operating procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.03 Recognize limitations of use of power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.04 Select power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.05 Maintain power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.02.06 Store power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.07 Identify worn, damaged or defective power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.08 Apply hand-eye coordination and mechanical dexterity Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**Task 1 - A
(cont'd)**

Learning Outcome
Uses tools and
equipment

Knowledge, Skills and Abilities - Competencies

**Task 1
Learning Needs**

**Sub-Tasks
Learning Objectives**
to be completed
Comments

<p>SUB-TASK 1.03</p> <p><u>Learning Objective</u> Uses measuring tools</p> <p>JP Sign-off _____</p>	<p>1.03.01 Identify types of measuring tools</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.03.02 Perform pipe trade measurements such as end-to-centre, end-to-end and face-to-centre</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.03.03 Interpret measurements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.03.04 Convert imperial and metric measurements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.03.05 Select measuring tools</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>1.03.06 Maintain measuring tools</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.03.07 Store measuring tools</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>			
<p>SUB-TASK 1.04</p> <p><u>Learning Objective</u> Uses welding equipment</p> <p>JP Sign-off _____</p>	<p>1.04.01 Identify types of welding equipment such as shielded metal arc welding (SMAW), tungsten inert gas (TIG) and gas metal arc welding (GMAW)</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.02 Describe appropriate alloys and fluxes</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.03 Protect flammable materials from welding</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.04 Match alloy to specific components to be welded</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.05 Select welding equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>1.04.06 Maintain welding equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.07 Store welding equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.08 Recognize worn, damaged or defective welding equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.09 Apply hand-eye coordination and mechanical dexterity</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>1.04.10 Tack weld</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>

**Task 1 - A
(cont'd)**

Learning Outcome
Uses tools and
equipment

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
- 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
- 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
- 2 - Complete a task with some assistance and supervision
- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

**Task 1
Learning Needs**

**Sub-Tasks
Learning Objectives**
to be completed
Comments

SUB-TASK 1.05 <u>Learning Objective</u> Uses soldering and brazing equipment JP Sign-off ____	1.05.01 Identify types of soldering and brazing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.02 Describe appropriate brazing alloys and fluxes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.03 Protect flammable materials from soldering and brazing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.04 Match alloy to specific components to be soldered and brazed Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.05 Select soldering and brazing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.05.06 Maintain soldering and brazing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.07 Store soldering and brazing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.08 Recognize worn, damaged or defective soldering and brazing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.09 Apply hand-eye coordination and mechanical dexterity Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
SUB-TASK 1.06 <u>Learning Objective</u> Uses ladders and work platforms JP Sign-off ____	1.06.01 Identify types of ladders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.02 Select appropriate types of work platforms such as scaffolds, hydraulic lifts and man lifts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.03 Apply safety regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.04 Implement operating procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.05 Determine the limitations of ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.06.06 Secure ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.07 Check ladders and work platforms prior to and during use Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.08 Recognize worn, damaged or defective ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**Task 1 - A
(cont'd)**

Learning Outcome
Uses tools and
equipment

**Task 1
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.07 <u>Learning Objective</u> Uses personal protective equipment (PPE) and safety equipment JP Sign-off _____	1.07.01 Identify types of PPE such as fall arrest harnesses, respirators and face shields Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.02 Demonstrate an understanding of types of safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.03 Demonstrate PPE and safety equipment operating procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.04 Acquire appropriate training requirements for PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.05 Establish appropriate locations of PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.07.06 Interpret workplace safety and health regulations such as Workplace Hazardous Materials Information System (WHMIS) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.07 Select PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.08 Maintain PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.09 Store PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.07.10 Recognize worn, damaged or defective PPE and safety equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

Task 2 - A
6 questions on the IP exam
Learning Outcome
Organizes work

Journeyperson
 Sign-off
 Task 2

Complete

Incomplete

Task 2 Learning Needs

Sub-Tasks Learning Objectives
 to be completed
 Comments

- Rating:**
- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 - 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 - 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 - 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
 - 2 - Complete a task with some assistance and supervision
 - 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 2.01 <u>Learning Objective</u> Plans job JP Sign-off ____	2.01.01 Interpret assigned work Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.02 Coordinate assigned work performed by other tradespersons Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.03 Work with other trades Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.04 Estimate time and labour requirements to complete tasks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.05 Adapt to changing environmental conditions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.01.06 Identify tools, piping, equipment and components required for task Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.07 Identify rigging and hoisting equipment required for task Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.08 Identify sequence of tasks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 2.02 <u>Learning Objective</u> Uses documentation JP Sign-off ____	2.02.01 Identify types of documentation such as codes, regulations, checklists, charts, work orders, tool manuals and manufacturers' installation guides Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.02 Secure permits such as hot work, cold work and confined space Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.03 Locate documentation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.04 Follow manufacturers' installation instructions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.05 Complete checklists Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

**Task 2 - A
(cont'd)**

Learning Outcome
Organizes work

**Task 2
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 2.03</p> <p><u>Learning Objective</u> Communicates with others</p> <p>JP Sign-off _____</p>	<p>2.03.01 Demonstrate an understanding of trade terminology</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.03.02 Operate communication equipment such as two-way radios and air horns</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.03.03 Communicate with tradespeople</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.03.04 Communicate with non-tradespeople such as owners, engineers and the general public</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.03.05 Follow instructions</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>2.03.06 Ask and answer job-related questions</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				
<p>SUB-TASK 2.04</p> <p><u>Learning Objective</u> Selects piping and components</p> <p>JP Sign-off _____</p>	<p>2.04.01 Recognize piping and fitting symbols</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.02 Recognize control symbols</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.03 Recognize joining symbols</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.04 Interpret piping grades and schedules</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.05 Choose types of fasteners</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>2.04.06 Choose types of hangers, supports, guides and anchors</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.07 Reference codes and specifications</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.08 Recognize types of piping and components</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.04.09 Expedite material and spool pieces to installation location</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	

**Task 2 - A
(cont'd)**

Learning Outcome
Organizes work

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
- 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
- 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
- 2 - Complete a task with some assistance and supervision
- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

**Task 2
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 2.05 <u>Learning Objective</u> Performs quality control functions JP Sign-off _____	2.05.01 Determine types of non-destructive testing (NDT)	2.05.02 Use quality control documentation such as manuals, daily reports and mill test reports	2.05.03 Apply codes and specifications and applicable drawings	2.05.04 Identify piping materials	2.05.05 Perform hydrostatic and pneumatic pressure testing	
	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.05.06 Reference weld procedures	2.05.07 Transfer heat numbers and welder I.D. numbers	2.05.08 Document material for traceability	2.05.09 Verify the types of piping within the system	2.05.10 Compile turnover documentation	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
2.05.11 Verify the integrity of coating for piping assemblies and components	2.05.12 Apply heat treating and stress relieving techniques	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

**Task 2 - A
(cont'd)**

Learning Outcome
Organizes work

**Task 2
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 2.06</p> <p><u>Learning Objective</u> Maintains safe work environment</p> <p>JP Sign-off _____</p>	<p>2.06.01 Interpret company safety policies</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.02 Determine safety training requirements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.03 Follow disposal and recycling procedures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.04 Choose appropriate locations of WHMIS information such as Material Safety Data Sheets (MSDS)</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.05 Identify and/or choose location of PPE and safety equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>2.06.06 Reference safety regulations</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.07 Install temporary safety protection</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.08 Handle and store hazardous materials</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.09 Recognize and correct unsafe conditions</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>2.06.10 Report potential hazards</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>2.06.11 Keep workplace tidy and organized</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				

Steamfitter/Pipefitter

BLOCK B
13% - 17 questions on the IP exam

Learning Category
DRAWINGS AND SPECIFICATIONS

Task 3 - B
12 questions on the IP exam

Learning Outcome
Interprets drawings and specifications

Journeyperson
Sign-off
Task 3

Complete

Incomplete

Task 3 Learning Needs

Sub-Tasks Learning Objectives
to be completed
Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
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Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 3.01 <u>Learning Objective</u> Compares specifications to drawings JP Sign-off ____	3.01.01 Identify sections of specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.02 Identify all types of drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.03 Define scope of work Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.04 Recognize drawing revisions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.05 Reference codes with specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	SUB-TASK 3.02 <u>Learning Objective</u> Refers to types of drawings JP Sign-off ____	3.02.01 Classify types of drawings such as structural, architectural and electrical Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.02 Determine ordinate lines and elevations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.03 Interpret abbreviations and drafting symbols such as lines, weld symbols, piping and fitting symbols, and control symbols Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.04 Gather information from multiple drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.02.06 Visualize drawings in 3 dimensions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.07 Determine dimensions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.08 Identify types of piping systems from drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.09 Interpret electrical ladder diagrams Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

**Task 3 - B
(cont'd)**

Learning Outcome
Interprets drawings and specifications

**Task 3
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 3.03</p> <p><u>Learning Objective</u> Determines location of piping and equipment</p> <p>JP Sign-off _____</p>	<p>3.03.01 Determine ordinate lines, elevations and benchmarks</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.03.02 Develop piping and equipment layout</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.03.03 Relate drawings to structures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.03.04 Relate line numbering systems to drawings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.03.05 Relate to interference drawings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>3.03.06 Interpret equipment layout drawings, vendor drawings and mechanical drawings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				
<p>SUB-TASK 3.04</p> <p><u>Learning Objective</u> Generates material list</p> <p>JP Sign-off _____</p>	<p>3.04.01 Classify types of drawings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.04.02 Determine specifications</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.04.03 Apply applicable codes</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.04.04 Interpret drafting symbols and abbreviations</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.04.05 Select types and grades of piping materials</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>3.04.06 Organize and compile information</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.04.07 Visualize drawing in 3 dimensions</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>			

Task 4 - B
5 questions on the IP exam
Learning Outcome
Performs drafting

Journeyperson
 Sign-off
 Task 4

Complete

Incomplete

Task 4 Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 4.01 <u>Learning Objective</u> Generates drawings JP Sign-off ____	4.01.01 Identify isometric and orthographic drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.02 Interpret schematic drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.03 Apply geometry and trigonometry Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.04 Interpret isometric axes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.05 Use drafting tools and methods Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	4.01.06 Use drafting symbols Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.07 Create as-built drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 4.02 <u>Learning Objective</u> Develops templates JP Sign-off ____	4.02.01 Identify all types of templates Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.02 Differentiate types of fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.03 Apply geometry and trigonometry Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.04 Identify required template Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.05 Sketch template Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	4.02.06 Use precision layout tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

Steamfitter/Pipefitter

BLOCK C
20% - 26 questions on the IP exam

Learning Category
PIPING LAYOUT AND COMMON INSTALLATION

Task 5 - C
12 questions on the IP exam

Learning Outcome
Performs layout and fabrication

Journeyperson
Sign-off
Task 5

Complete

Incomplete

Task 5 Learning Needs

Sub-Tasks Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 5.01 <u>Learning Objective</u> Uses templates JP Sign-off ____	5.01.01 Utilize all types of templates Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.02 Assemble all types of pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.03 Transfer ordinates to pipe, fittings or templates and vice-versa Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.04 Align template to ordinates Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.05 Trace outline of template on material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	SUB-TASK 5.02 <u>Learning Objective</u> Lays out pipe and fittings JP Sign-off ____	5.02.01 Determine fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.02 Implement layout techniques Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.03 Select piping and fitting materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.04 Take field measurements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.05 Determine field weld locations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	5.02.06 Support and level piping and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.07 Apply ordinate lines to material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.08 Use reference material such as pipefitters' handbooks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.09 Use precision layout tools such as contour markers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.10 Perform required calculations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
5.02.11 Check calculations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____						

**Task 5 - C
(cont'd)**

Learning Outcome
Performs layout and
fabrication

- Rating:**
- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 - 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 - 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 - 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
 - 2 - Complete a task with some assistance and supervision
 - 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

**Task 5
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 5.03 <u>Learning Objective</u> Prepares pipe and fittings JP Sign-off _____	5.03.01 Determine cutting procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.02 Determine bending procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.03 Determine threading procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.04 Determine grooving procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.05 Determine bevelling procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	5.03.06 Clean pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.07 Cut pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.08 Bevel pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.09 Bend pipe and tubing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.10 Thread pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	5.03.11 Groove pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.12 Drill and tap pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.13 Ream pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.03.14 Transition pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**Task 5 - C
(cont'd)**

Learning Outcome
Performs layout and fabrication

**Task 5
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 5.04 <u>Learning Objective</u> Fabricates spools JP Sign-off _____	5.04.01 Determine alignment procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.02 Perform assembly procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.03 Determine proper types of protective coatings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.04 Verify tolerance of components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.05 Apply protective coatings to piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	5.04.06 Cut internally lined piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.07 Clean pipe and components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.04.08 Interpret drawings such as isometric Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

6 - C
14 questions on the IP exam
Learning Outcome
Performs common installation processes

Journeyperson
 Sign-off
 Task 6
 Complete
 Incomplete

Task 6 Learning Needs
Sub-Tasks Learning Objectives
 to be completed
 Comments

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
- 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
- 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
- 2 - Complete a task with some assistance and supervision
- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 6.01 <u>Learning Objective</u> Installs supports, hangers, guides and anchors JP Sign-off _____	6.01.01 Determine proper types of support and hangers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.02 Determine proper types of guides and anchors Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.03 Match fasteners to piping material being supported such as fibreglass, copper and alloy Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.04 Identify piping contents to be supported Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.05 Choose types of fasteners Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	
	6.01.06 Determine thickness of insulation Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.07 Calculate spacing of supports and hangers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.08 Calculate elevation of supports and hangers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.09 Calculate grade of supports and hangers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.10 Recognize interferences Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	
	6.01.11 Fabricate supports and hangers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.12 Attach supports and hangers to building structure Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.13 Attach guides and anchors to building structure Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	6.01.14 Reference support details Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____		

Learning Outcome
Performs common
installation processes

Task 6
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 6.02</p> <p><u>Learning Objective</u> Joins piping</p> <p>JP Sign-off _____</p>	<p>6.02.01 Determine joining techniques such as plastic fusion, welding, soldering and brazing, and threading</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.02 Determine alignment procedures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.03 Apply torquing procedures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.04 Calculate expansion and contraction</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.05 Align and level</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>6.02.06 Reference specifications for bolts, nuts, gaskets and threading compounds</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.07 Install expansion joints, swing joints and expansion loops</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.08 Determine and apply bolt patterns</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.09 Solder pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.10 Braze pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>6.02.11 Solvent weld pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.12 Mechanically join pipe using methods such as press fit, compression and grooved pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.13 Join threaded pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.14 Join pipe using flanges</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.15 Join fibreglass pipe</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>6.02.16 Join black iron welded pipe using bell and spigot</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.17 Join thermo plastic pipe using heat fusion</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>6.02.18 Follow purging procedures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>		

- Rating:**
- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 - 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 - 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 - 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
 - 2 - Complete a task with some assistance and supervision
 - 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

Task 6
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 6.03					
<u>Learning Objective</u> Installs piping system components and equipment JP Sign-off _____	6.03.01 Select types of components and equipment such as boiler trim, valves, temperature indicators, back-flow preventers and compressors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.02 Select controls in reference to process and instrumentation drawings (P & ID) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.03 Demonstrate an understanding of system operating parameters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.04 Select piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.05 Perform piping practices and procedures associated with specific piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	6.03.06 Determine system medium such as water, steam or oil Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.07 Demonstrate an understanding of flow characteristics Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.08 Determine connection points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.09 Reference specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.10 Reference manufacturers' installation instructions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	6.03.11 Interpret electrical ladder diagrams Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.12 Install common control devices such as pressure indicators and pressure transmitters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.03.13 Measure from grid lines Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

Steamfitter/Pipefitter

BLOCK D
10% - 13 questions on the IP exam

Learning Category
RIGGING AND HOISTING

Task 7 - D
6 questions on the IP exam

Learning Outcome
Plans lift

Journeyperson
 Sign-off
 Task 7

Complete

Incomplete

Task 7 Learning Needs

Sub-Tasks Learning Objectives to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 7.01 <u>Learning Objective</u> Determines load JP Sign-off ____	7.01.01 Demonstrate an understanding of weights and measures Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.01.02 Demonstrate an understanding of types of loads Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.01.03 Determine requirements for engineered lifts Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.01.04 Calculate weights and measures Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.01.05 Assess load requirements such as rigging equipment and capacity Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	7.01.06 Determine centre of gravity Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____				
SUB-TASK 7.02 <u>Learning Objective</u> Selects rigging equipment JP Sign-off ____	7.02.01 Demonstrate an understanding of rigging methods Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.02 Identify types of rigging equipment such as chain falls, come-alongs, shackles and slings Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.03 Identify spreader bars and restrictions Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.04 Select required rigging equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.05 Calculate mechanical advantage Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	7.02.06 Calculate load balancing requirements Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.07 Reference rigging tables Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	7.02.08 Check condition of equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____		

**Task 7 - D
(cont'd)**

Learning Outcome
Plans lift

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
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- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

**Task 7
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 7.03 <u>Learning Objective</u> Selects lifting equipment JP Sign-off _____	7.03.01 Determine height and weight limitations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.03.02 Demonstrate an understanding of lifting equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.03.03 Determine direction of lift Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.03.04 Determine ropes, knots and hitches Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.03.05 Calculate mechanical advantage Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	7.03.06 Demonstrate an understanding of lever systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.03.07 Reference load charts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

8 - D
7 questions on the IP exam

Learning Outcome
Hoists load

Journeyperson
 Sign-off
 Task 8

Complete

Incomplete

Task 8 Learning Needs

Sub-Tasks Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 8.01 <u>Learning Objective</u> Secures lift area JP Sign-off ____	8.01.01 Calculate lift radius and load Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.02 Determine securing procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.03 Communicate lift to others Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.04 Conduct pre-lift safety checks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	SUB-TASK 8.02 <u>Learning Objective</u> Sets up rigging equipment JP Sign-off ____	8.02.01 Select types of rigging equipment such as chain falls, come-alongs, shackles and slings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.02 Interpret shop drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.03 Perform attachment procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	8.02.06 Determine load placement Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.07 Assist crane operator with crane placement Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.08 Determine lifting points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.09 Determine attachment points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	8.02.11 Set up rigging components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			8.02.10 Tie knots Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
- 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
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- 2 - Complete a task with some assistance and supervision
- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

Task 8 Learning Needs

Sub-Tasks Learning Objectives to be completed

Comments

SUB-TASK 8.03 <u>Learning Objective</u> Performs lift JP Sign-off ____	8.03.01 Apply rigging communication method Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.02 Demonstrate an understanding and use of rigging terminology Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.03 Balance load Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.04 Perform test lift Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.05 Use hand signals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	8.03.06 Use electronic communication devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.07 Transfer load to other rigging equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.08 Place (land) load Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.03.09 Secure load in location Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
SUB-TASK 8.04 <u>Learning Objective</u> Conducts post-lift equipment inspection JP Sign-off ____	8.04.01 Perform equipment inspection techniques Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.04.02 Detect faulty equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.04.03 Assess damage to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.04.04 Tag damaged equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.04.05 Report faulty or damaged equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	SUB-TASK 8.05 <u>Learning Objective</u> Stores equipment JP Sign-off ____	8.05.01 Apply appropriate storage procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.05.02 Evaluate storage conditions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.05.03 Protect rigging and lifting equipment from elements such as weather, temperature and chemicals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

Steamfitter/Pipefitter

BLOCK E
14% - 18 questions on the IP exam

Learning Category
STEAM SYSTEM INSTALLATION

Task 9 - E
12 questions on the IP exam

Learning Outcome
Installs high and low pressure process steam systems

Journey person
Sign-off
Task 9

Complete

Incomplete

Task 9
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 9.01 <u>Learning Objective</u> Installs equipment for high and low pressure process steam JP Sign-off ____	9.01.01 Demonstrate an understanding of high pressure steam equipment such as deaerator tanks and soot blowers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.02 Demonstrate an understanding of low pressure steam equipment such as steam kettles, steam dryers and autoclaves Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.03 Recognize applications for high pressure process such as turbines Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.04 Recognize applications for low pressure process such as humidifiers and sterilizers Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.05 Recognize condensate removal systems Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	9.01.06 Demonstrate an understanding of the dangers associated with high and low pressure steam Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.07 Demonstrate an understanding of equipment isolation components such as double-block and bleed Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.08 Install condensate components for high and low pressure Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.09 Attach piping to equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.10 Set and level equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	9.01.11 Secure equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.12 Install vibration isolation Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.01.13 Install expansion control devices Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____		

SUB-TASK 9.02 <u>Learning Objective</u> Installs piping for high pressure process steam JP Sign-off ____	9.02.01 Determine piping materials used for process such as carbon steel and alloy steel Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.02 Classify grades and sizes of pipe Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.03 Select components such as pressure reducing stations and pressure relief valves Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.04 Demonstrate an understanding of applications of superheated steam Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.05 Demonstrate an understanding of and take precautions against dangers of superheated steam Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	9.02.06 Calculate expansion and contraction of pipe Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.07 Install steam tracing Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.08 Install piping to reclaim superheated steam Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.09 Install types of controls such as hydraulic, pneumatic and electric Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	9.02.10 Install metering controls Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____

**Task 9 - E
(cont'd)**

Learning Outcome
Installs high and low
pressure process steam
systems

Rating:

- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
- 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
- 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
- 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
- 2 - Complete a task with some assistance and supervision
- 1 - Complete task with assistance and constant supervision

Type of Proof:

- O - Observation
- I - Interview
- D - Documentation

Use:

- 1 - Daily
- 2 - Often
- 3 - Seldom
- 4 - Never

Knowledge, Skills and Abilities - Competencies

**Task 9
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 9.03 <u>Learning Objective</u> Installs piping for low pressure process steam JP Sign-off _____	9.03.01 Demonstrate an understanding of applications for process with low pressure steam such as sterilization, process heating and humidification Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.03.02 Classify piping materials such as alloy steel and carbon steel Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.03.03 Attach components such as pressure reducing stations, control valves and cyclones Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.03.04 Clean assembled piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.03.05 Install types of controls such as hydraulic, pneumatic and electric Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	9.03.06 Install metering controls Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

10 - E
6 questions on the IP exam

Learning Outcome
Installs steam heating systems

Journeyperson
 Sign-off
 Task 10

Complete

Incomplete

Task 10 Learning Needs

Sub-Tasks Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 10.01 <u>Learning Objective</u> Installs equipment for steam heating systems JP Sign-off ____	10.01.01 Select equipment such as boilers, condensate return pumps and converters Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.02 Determine methods for joining equipment to piping Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.03 Determine condensate removal systems Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.04 Locate and set equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.05 Set elevation of equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	10.01.06 Secure equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.07 Attach equipment accessories Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.08 Level equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.09 Install vibration isolation Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.01.10 Install condensate components Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	10.01.11 Install equipment controls such as low water cut-offs and water gauges (site glasses) Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____				
SUB-TASK 10.02 <u>Learning Objective</u> Installs piping for steam heating systems JP Sign-off ____	10.02.01 Determine piping materials such as carbon steel and alloy steel Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.02 Classify grades and sizes of pipe Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.03 Select piping components such as heat transfer units, valve and steam traps Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.04 Calculate pressure ranges required Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.05 Determine thickness of insulation and pipe covering Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	10.02.06 Calculate effect of expansion and contraction on hangers, supports, guides and anchors Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.07 Demonstrate an understanding of steam heating applications and systems Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.08 Demonstrate an understanding and take precautions against the dangers associated with high pressure steam Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.09 Attach components Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	10.02.10 Determine connection points Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____

Steamfitter/Pipefitter

BLOCK F
17% - 22 questions on the IP exam

Learning Category
HEATING, COOLING AND PROCESS SYSTEM INSTALLATION

Task 11 - F
6 questions on the IP exam

Learning Outcome
Installs hydronic systems

Journey person Sign-off Task 11

Complete

Incomplete

Task 11 Learning Needs

Sub-Tasks Learning Objectives to be completed
Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 11.01 Learning Objective Installs equipment for hydronic systems JP Sign-off ____	11.01.01 Select hot water boilers, converters and components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.02 Select chillers and components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.03 Select cooling towers and components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.04 Demonstrate an understanding of alternate heat sources such as geothermal and solar Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.05 Calculate heat loss and heat gain Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	11.01.06 Select proper sized pump for application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.07 Determine location of equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.08 Set and level equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.09 Lay out mechanical area Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.10 Secure equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	11.01.11 Install vibration isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	11.01.12 Install multi boiler and multi zone heating systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

**Task 11 - F
(cont'd)**

Learning Outcome
Installs hydronic systems

**Task 11
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 11.02</p> <p><u>Learning Objective</u> Installs piping for hydronic systems</p> <p>JP Sign-off _____</p>	<p>11.02.01 Demonstrate an understanding of types of hydronic systems such as hot water, chilled water, condenser water and glycol</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.02 Determine types of piping arrangements such as one-pipe, two-pipe, direct, reverse return, radiant panel, solar devices and domestic inline water heaters</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.03 Select types of hangers for hydronic piping</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.04 Select valves and fittings used in hydronic systems</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.05 Designate controls and wiring for hydronic heating and cooling systems</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>11.02.06 Determine appropriate locations for heat transfer units</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.07 Determine thickness of insulation and pipe covering</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.08 Select joining methods such as soldering, mechanical joints and welded joints</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.09 Calculate heat loss and heat transfer</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>11.02.10 Calculate system volume</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>11.02.11 Calculate head pressures</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				

12 - F
 1 question on the IP exam
 Learning Outcome
 Installs refrigeration systems

Journeyperson
 Sign-off
 Task 12
 Complete
 Incomplete

Task 12
 Learning Needs
 Sub-Tasks
 Learning Objectives
 to be completed
 Comments

Rating:
 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 12.01 <u>Learning Objective</u> Installs equipment for refrigeration systems JP Sign-off ____	12.01.01 Demonstrate an understanding of refrigeration system components such as compressors, evaporators, expansion valves and condensers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.02 Reference refrigerants Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.03 Determine the refrigeration cycle from drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.04 Determine location of equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.05 Set and level equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.01.06 Secure equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.07 Install vibration isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 12.02 <u>Learning Objective</u> Installs piping and tubing for refrigeration systems JP Sign-off ____	12.02.01 Determine supports and insulation requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.02 Apply applicable codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.03 Reference refrigeration piping and tubing specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.04 Select joining methods such as welded and brazed Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

13 - F
8 questions on the IP exam

Learning Outcome
Installs process piping systems

Journeyperson
 Sign-off
 Task 13

Complete

Incomplete

Task 13
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 13.01 <u>Learning Objective</u> Installs equipment for process piping systems JP Sign-off ____	13.01.01 Demonstrate an understanding of types of equipment for process piping systems such as pumps, exchangers and vessels Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.01.02 Determine equipment function Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.01.03 Determine location of equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.01.04 Set and level equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.01.05 Secure equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	13.01.06 Install vibration isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				
SUB-TASK 13.02 <u>Learning Objective</u> Installs piping for process piping systems JP Sign-off ____	13.02.01 Classify types and grades of pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.02 Select pipe accessories and components such as valves, strainers and expansion joints Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.03 Determine system medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.04 Apply applicable codes and specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.05 Determine bolt torquing and tensioning equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	13.02.06 Determine welding methods and procedures from job specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.07 Distinguish material types such as carbon, stainless steel and plastic Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.02.08 Select joining methods such as solvent welding, butt fusion and fibreglass reinforced pipe (FRP) lay-up Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

14 - F
2 questions on the IP exam
Learning Outcome
Installs hydraulic systems

Journeyperson
Sign-off
Task 14
Complete
Incomplete

Task 14
Learning Needs
Sub-Tasks
Learning Objectives
to be completed
Comments

Rating:
6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
2 - Complete a task with some assistance and supervision
1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 14.01 <u>Learning Objective</u> Installs equipment for hydraulic systems JP Sign-off ____	14.01.01 Select hydraulic system components such as reservoirs, valves and pumps Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.01.02 Apply hydraulic principles Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.01.03 Install drive motors and actuators Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.01.04 Determine location of equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.01.05 Set and level equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	14.01.06 Secure equipment Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.01.07 Install vibration isolation Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 14.02 <u>Learning Objective</u> Installs piping and tubing for hydraulic systems JP Sign-off ____	14.02.01 Determine pipe, tubing and fittings Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.02.02 Determine hoses and their connectors Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.02.03 Identify pressure relief circuits Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.02.04 Identify types of hydraulic fluids Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.02.05 Identify support requirements for hydraulic piping Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____
	14.02.06 Select joint sealant compounds Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____	14.02.07 Select joining methods such as welded, screwed and hose connectors Rating ____ Complete <input type="checkbox"/> Proof ____ <input type="checkbox"/> Use ____			

15 - F
2 questions on the IP exam

Learning Outcome
Installs fuel systems

Journeyperson
 Sign-off
 Task 15

Complete

Incomplete

Task 15 Learning Needs

Sub-Tasks Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 15.01 <u>Learning Objective</u> Installs equipment for fuel systems JP Sign-off _____	15.01.01 Apply applicable codes in area Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.02 Recognize burner types and operating principles Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.03 Determine source of ignition Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.04 Calculate appropriate venting Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.05 Identify products of combustion Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	
	15.01.06 Calculate combustion air Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.07 Select proper controls Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.08 Determine fuel storage and supply Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.09 Determine location of equipment Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.10 Set and level equipment Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	
	15.01.11 Secure equipment Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.01.12 Install vibration isolation Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___				
SUB-TASK 15.02 <u>Learning Objective</u> Installs piping for fuel systems JP Sign-off _____	15.02.01 Demonstrate an understanding of types of fuels such as bunker C, natural gas and propane Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.02 Select regulators Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.03 Apply applicable codes Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.04 Select fuel gas valves Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.05 Reference piping requirements for fuel oils Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	
	15.02.06 Reference piping requirements for gaseous fuels Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.07 Determine routing Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___	15.02.08 Label system Rating ___ Complete <input type="checkbox"/> Proof ___ <input type="checkbox"/> Use ___			

16 - F
3 questions on the IP exam

Learning Outcome
Installs compressed air and medical gas systems

Journeyperson
 Sign-off
 Task 16

Complete

Incomplete

Task 16
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

- Rating:**
- 6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 - 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 - 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 - 3 - Complete a task to the level and quality of performance required by industry without assistance or supervision**
 - 2 - Complete a task with some assistance and supervision
 - 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 16.01 <u>Learning Objective</u> Installs equipment for compressed air and medical gas systems JP Sign-off _____	16.01.01 Select air compressors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.02 Select compressed air dryers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.03 Select filters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.04 Meet certification requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.05 Select receiver tanks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	16.01.06 Select medical gas system equipment such as vacuum pumps and dryers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.07 Select equipment controls such as pressure regulators, pressure switches and pressure relief valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.08 Select manifold assemblies Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.09 Install medical gas panels, columns and terminal units Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.10 Reference medical gas codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	16.01.11 Determine location of equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.12 Set and level equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.13 Secure equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.14 Install vibration isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**16 - F
(cont'd)**

Learning Outcome
**Installs compressed air
and medical gas systems**

**Task 16
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 16.02</p> <p><u>Learning Objective</u> Installs piping and tubing for compressed air systems</p> <p>JP Sign-off _____</p>	<p>16.02.01 Demonstrate an understanding of instrument air requirements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.02 Demonstrate an understanding of utility air requirements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.03 Demonstrate an understanding of process air requirements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.04 Determine types of piping such as stainless steel, carbon, galvanized steel and copper</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.05 Select tubing and hoses</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	
	<p>16.02.06 Determine routing</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.07 Install connectors</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.08 Install drip leg and dirt pocket</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.02.09 Install inline filter/regulator/lubricator</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>		
<p>SUB-TASK 16.03</p> <p><u>Learning Objective</u> Installs piping and tubing for medical gas systems</p> <p>JP Sign-off _____</p>	<p>16.03.01 Select medical gas piping and tubing and related equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.02 Classify types of medical gases such as oxygen, air and nitrogen</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.03 Demonstrate an understanding of the importance of cleanliness of system</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.04 Demonstrate an understanding of pin indexing and Diameter Index Safety System (DISS)</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.05 Install quick connect fittings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	
	<p>16.03.06 Use joining methods such as brazing, mechanical and orbital welding</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.07 Clean piping, tubing and fittings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.08 Prepare joints</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.09 Purge lines</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>16.03.10 Install emergency shut-off valves</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	
	<p>16.03.11 Label entire system</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>					

Steamfitter/Pipefitter

BLOCK G
77% - 9 questions on the IP exam

Learning Category
TESTING AND COMMISSIONING

17 - G
4 questions on the IP exam

Learning Outcome
Prepares system for test

Journeyperson
Sign-off
Task 17

Complete

Incomplete

Task 17 Learning Needs

Sub-Tasks Learning Objectives to be completed
Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
 3 - **Complete a task to the level and quality of performance required by industry without assistance or supervision**
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 17.01 <u>Learning Objective</u> Pre-checks system for test JP Sign-off ____	17.01.01 Select pre-check list such as a punch list Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.02 Complete pre-check list such as a punch list Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.03 Trace the pipe line using drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
	SUB-TASK 17.02 <u>Learning Objective</u> Selects test equipment JP Sign-off ____	17.02.01 Recognize types of test equipment such as hydrostatic test pumps, regulators and test gauges Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.02 Determine system test requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.03 Perform test equipment operations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.04 Reference MSDS Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	17.02.06 Reference drawings and specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.07 Perform basic check of test equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 17.03 <u>Learning Objective</u> Isolates system JP Sign-off ____	17.03.01 Determine component limitations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.03.02 Install temporary spools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.03.03 Install isolation components such as blinds, plugs and caps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.03.04 Apply isolation methods such as lock-out procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

**Task 17 - G
(cont'd)**

Learning Outcome
Prepares system for test

**Task 17
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

Knowledge, Skills and Abilities - Competencies

SUB-TASK 17.04 <u>Learning Objective</u> Connects test equipment JP Sign-off _____	17.04.01 Identify connection points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.04.02 Select types of accessories such as vents, drains and test headers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.04.03 Apply manufacturers' recommendations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.04.04 Use test headers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.04.05 Install vents and drains Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

Task 18 - G
3 questions on the IP exam
Learning Outcome
Performs test

Journeyperson
 Sign-off
 Task 18

Complete

Incomplete

Task 18
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
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 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 18.01 <u>Learning Objective</u> Secures test area JP Sign-off _____	18.01.01 Apply securing procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.02 Determine test area radius Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.03 Apply safety procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.04 Communicate test to others Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
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SUB-TASK 18.02 <u>Learning Objective</u> Pressurizes system JP Sign-off _____	18.02.01 Reference MSDS for testing medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.02 Calculate testing pressure Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.03 Fill system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.04 Apply test procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.05 Operate test equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	18.02.06 Vent and drain piping system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.07 Monitor test equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

SUB-TASK 18.03 <u>Learning Objective</u> Inspects system JP Sign-off _____	18.03.01 Apply test parameters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.03.02 Reference documentation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.03.03 Detect defects Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.03.04 Report defects Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
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**Task 18 - G
(cont'd)**

Learning Outcome
Performs test

Knowledge, Skills and Abilities - Competencies

SUB-TASK 18.04 <u>Learning Objective</u> Corrects leaks JP Sign-off ____	18.04.01 Identify types of defects Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.04.02 Depressurize Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.04.03 Correct defect Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.04.04 Re-test system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
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**Task 18
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

SUB-TASK 18.05 <u>Learning Objective</u> Removes test equipment JP Sign-off ____	18.05.01 Determine medium handling Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.05.02 Apply solution disposal and recovery methods Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.05.03 Apply test equipment handling procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.05.04 Depressurize Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.05.05 Recover and dispose of test solutions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	18.05.06 Flush system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

Task 19 - G
2 questions on the IP exam
Learning Outcome
Commissions systems

Journeyperson
 Sign-off
 Task 19

Complete

Incomplete

Task 19
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 19.01 <u>Learning Objective</u> Flushes system JP Sign-off ____	19.01.01 Apply MSDS for flushing medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.01.02 Select equipment required Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.01.03 Follow flushing procedure Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.01.04 Follow cleaning procedure Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.01.05 Reference specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	19.01.06 Identify equipment to be protected from flushing medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.01.07 Recover and dispose of flushing medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 19.02 <u>Learning Objective</u> Chemically treats system JP Sign-off ____	19.02.01 Apply MSDS Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.02.02 Select equipment required Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.02.03 Reference specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.02.04 Follow treatment procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	19.02.05 Obtain a sample of the treated medium for testing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

**Task 19 - G
(cont'd)**

Learning Outcome
Commissions systems

Knowledge, Skills and Abilities - Competencies

**Task 19
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

<p>SUB-TASK 19.03</p> <p><u>Learning Objective</u> Assists in start-up procedure</p> <p>JP Sign-off _____</p>	<p>19.03.01 Determine components</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.02 Apply equipment/ trim function specifications</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.03 Remove blinds</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.04 Reinstall controls and equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.05 Install additional trim</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>19.03.06 Check equipment/trim function</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.07 Liaise with owner's representative</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.08 Fill system to operational level</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.09 Follow start-up procedure</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>19.03.10 Install valve identification tags</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>19.03.11 Apply pipe markings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				

Steamfitter/Pipefitter

BLOCK H
8% - 11 questions on the IP exam

Learning Category
MAINTENANCE AND REPAIR

Task 20 - H
5 questions on the IP exam

Learning Outcome
Maintains system

Journeyperson
 Sign-off
 Task 20

Complete

Incomplete

Task 20
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Rating:

6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
 5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
 4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
 2 - Complete a task with some assistance and supervision
 1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

SUB-TASK 20.01 <u>Learning Objective</u> Follows lock-out procedures JP Sign-off ____	20.01.01 Identify piping system being worked on Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.02 Determine types of lock-out procedures such as mechanical and electrical Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.03 Determine components that require lock-out such as pumps, valves and electrical panels Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.04 Install blinds Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.05 Lock-out valves and equipment using chains, locks and tags Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	20.01.06 Verify that system is isolated Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

**Task 20 - H
(cont'd)**

Learning Outcome
Maintains system

**Task 20
Learning Needs**

**Sub-Tasks
Learning Objectives
to be completed
Comments**

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 20.02</p> <p><u>Learning Objective</u> Performs preventative maintenance and service</p> <p>JP Sign-off _____</p>	<p>20.02.01 Follow scheduled maintenance</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.02 Identify medium</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.03 Determine types of gaskets</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.04 Select appropriate lubricants</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.05 Evaluate fasteners</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>20.02.06 Isolate system</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.07 Depressurize and drain system</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.08 Secure area</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.09 Procure and inspect materials</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.10 Make gaskets</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>20.02.11 Assist with system shut-down</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.12 Clean components such as strainers, filters, traps and drains</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.13 Lubricate components such as valves, pumps and soot blowers</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.14 Retorque flanges</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>20.02.15 Recover and dispose of medium</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>

21 - H
6 questions on the IP exam
Learning Outcome
Performs repairs

Journeyperson
Sign-off
Task 21
Complete
Incomplete

Task 21
Learning Needs
Sub-Tasks
Learning Objectives
to be completed
Comments

Rating:
6 - Expert, perform a task beyond expected level and quality of performance, lead and/or teach others
5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
4 - Meet task timelines and perform tasks to the highest level and quality required by industry, without supervision
3 - Complete a task to the level and quality of performance required by industry without assistance or supervision
2 - Complete a task with some assistance and supervision
1 - Complete task with assistance and constant supervision

Type of Proof: O - Observation I - Interview D - Documentation

Use: 1 - Daily 2 - Often 3 - Seldom 4 - Never

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 21.01 <u>Learning Objective</u> Locates problems JP Sign-off _____</p>	<p>21.01.01 Sight potential problems with piping such as connection leaks, gasket failures and hot condensate lines Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.01.02 Sight potential problems with equipment such as leaking boiler connections and faulty emergency shut-off valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.01.03 Sight potential problems with components such as passing valves, leaking packings, bent valve stems and faulty steam traps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.01.04 Check system using senses and testing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.01.05 Check all parts of the system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>21.02.01 Determine piping system and medium Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.02 Determine components to be replaced such as gaskets and valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.03 Follow regulations and policies governing repairs such as confined space regulations and weld procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.04 Remove and replace piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.05 Apply temporary repairs to piping and components such as vessels and exchangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>21.02.06 Make gaskets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.07 Procure and inspect materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.08 Follow manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.09 Follow repair procedures such as locking out Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>21.02.10 Test and check repairs Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>21.02.11 Assist with start-up Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				

APPENDIX A

STEAMFITTER/PIPEFITTER NATIONAL OCCUPATIONAL ANALYSIS GLOSSARY OF TERMS

Backflow preventer	A device or a method that prevents a reverse flow from the normal direction of flow in a piping system
Back-pressure valve	A valve which prevents excessive back pressure in an exhaust steam piping system
Balancing valve	Valve used on hydronic system to give each circuit the same pressure drop due to friction loss
Blowdown	A connection at the bottom or lowest portion of a gauge glass, low water cutoff, automatic water feeder, cast iron water column, etc., to facilitate cleaning out or testing of the equipment
Blowoff	A connection tied in at the lowest possible level of the water section of a steam boiler and at the boiler water line to enable boiler drainage or removal of sludge, mud, scale, etc.
Blowoff tank	A device or apparatus used to receive boiler blow off for the purpose of cooling the water temperature to 170°F
Boiler feed water	See feed water
Boiler heating surface	The area of the heat transmitting surface within a boiler which is in contact with water (or steam) on one side and products of combustion (hot gases) and/or radiant heat from fire on the other side (direct heating surface [radiant], indirect heating surface [hot gases])
Boiler trim	The controls, equipment and accessories connected to a boiler for its safe and efficient operation

Butt fusion	A joining method that requires ends of pipe to be joined by direct heat application on material such as steel or plastic
Bypass valve	Manual controlled passage around a controlling device
CAD	Computer aided design; used for drawing, altering and recalling views and details on a computer
Circuit	The piping path from a boiler or heat exchanger to a heat transfer unit and back to the boiler, e.g. on a monoflow system each rad has a circuit
Condensate return system	A piping arrangement designated to return condensate to a steam generator
Contour marker	Instrument used in the fabrication of pipe that will trace lines for the cutting of Ts, Ys and laterals
Control valve	A globe-type valve which controls the flow of a liquid or gas automatically as directed by an electrical or pneumatic signal or a capillary tube; it may be a single or double seated valve
Controller	Attempts to regulate a measurement at some preselected valve; may also indicate or record, e.g. recorder-controller
Converter	A piece of equipment used to heat or cool water and other liquids by means of steam, high temperature hot water, or chilled water without the two mediums coming in contact with each other (heat exchanger; indirect heater)
Cyclones	Any of certain centrifugal devices for separating solid material from gases or liquids
Deaerator	A device used to heat the feedwater before it enters the steam boiler. It may be used for reducing thermal shock, saving of fuel, removing temporary hardness and unwanted gases (such as oxygen and carbon dioxide) from the make-up water
Desuperheater	A device which uses water as a cooling medium to lower the temperature of the superheated steam

Direct return	A two-pipe heating system (hydronic systems) in which the first unit supplied has the shortest return to the boiler
Dirt pocket	A short piece of pipe and a cap in which scale, dirt or any other foreign matter may gather and which prevents their entry into an automatic control, usually a steam trap
Double-block-and-bleed	A valving system wherein a full flow vent valve is located on piping between two shut-off valves in series for the purpose of bleeding to the atmosphere excess pressure between valves
Drip	A piping arrangement by which condensate accumulation is handled or removed in a steam system
Expansion joint	A manufactured, mechanical device to take up or to compensate for the expansion and contraction of a pipe line due to temperature change
Feed water	Water that is fed into a boiler
Flash tank	A device or apparatus used to cool high temperature condensate to a low enough temperature to prevent it from flashing in a low pressure return
Flashback	Flashback always occurs in the line carrying the lower pressure and will always occur beyond the mixer, and may include the hose and regulator as well. It is usually a devastating explosion or series of explosions, leaving the equipment in shambles
Flashing (flash steam)	The act of water changing to steam. Steam which is formed when hot condensate under pressure is released to a lower pressure
Grid lines	A pattern regularly spaced horizontal and vertical lines forming squares on a set of architectural drawings, used as a reference for locating points
Heat exchangers	A device for transferring heat from one fluid to another without intermixing the two fluids
Heat transfer unit	A device used to transfer heat from a fluid to a space for conduction, convection or radiation

High temperature hot-water system	A system which has hot water above 350°F
HVAC system	Heating, ventilation and air-conditioning system
Indicator	An instrument that shows a measurement, but makes no permanent record, e.g. pressure gauge
Interference drawings	Plan and elevation drawings for structural, civil and HVAC among others; used in conjunction with pipe drawings in an effort to identify conflicts or “interferences”; may also be known as coordination drawings
Isolators	A device used to isolate equipment from its piping for testing or flushing purposes; isolators are also used to give separation from its support to prevent the transmission of noise and/or vibration
Low water cutoff	A device which shuts off the automatic fuel control valve when the water falls below a safe level in the boiler
Make-up water	Water supplied to a system that replaces system fluid that has been lost through evaporation, leakage, etc.
Medium temperature hot-water system	A hot-water heating system which has a supply temperature between 250°F and 350°F
Pin indexing	Refers to a fail-safe design by which end connections for specific gasses can only be connected to other ends intended for use with the same gas; for example, equipment intended to utilize oxygen cannot physically be connected to a nitrous oxide gas supply
Post heating	Use of heat source to heat an area after a process such as welding takes place
Preheating	Use of heat source to heat an area before a process such as welding takes place

Pressure-reducing valve	A device of a globe valve pattern used to reduce steam pressure from a higher to a lower pressure; they may be single- or doubled-seated; a device of a globe valve pattern used to reduce city water pressure to the minimum desired system pressure (hot-water system)
Receiver	Receives the signal from a transmitter and converts it into a measurement; may be recording or indicating and may control, e.g. receiver recording controller
Recorder	Makes a permanent record of measurement
Resin	A bonding agent used in the fibreglass process; used in the pulp and paper industry because of its resistance to acids and alkalines
Safety relief valve	A safety device that will open before a dangerous pressure is reached
Saturated steam	Steam which is at the same temperature as the boiling water from which it was formed (dry saturated; wet saturated)
Single-seated control valve	A control valve with a single seat and a single plug or disc
Solvent fusion	Joining plastic pipe by the use of a solvent which dissolves the surface of the pipe and forms a continuous bond upon evaporation
Soot blower	A device which blows the soot off the tubes in the boiler with the use of steam
Spool sheets	Detail views of a piping system identifying specific piping and closing pieces to be fabricated
Spreader bar	A bar that keeps a set of slings from closing up around a piece of equipment and doing damage when in the process of lifting
Spreaders	A set of chokers or slings of equal length used to lift a load
Steam separator	A device used to remove entrained moisture present in steam

Steam tracing	A small tube, 3/8 in. – 5/8 in., which is wrapped around pipe, vessels and pumps and is filled with steam to keep liquids in them from freezing
Steam trap	An automatic device which allows the passage of air and condensate but prevents the passage of steam
Straightening vanes	A device used to take the turbulence out of liquids and gases flowing in pipes so measuring instruments can get an accurate reading
Superheated steam	Saturated steam with the addition of sensible heat; an increase in temperature of saturated steam without an increase in pressure
Superheater	A device used to reheat dry or wet-saturated steam and increase the temperature without increasing the pressure of the steam
Take-offs	Small pipes coming from a common larger header or pipe
Temperature drop	The difference in boiler temperature and return temperature from any circuit; in a hydronic system it is the difference in temperature between any two parts of the system
Vacuum pump	A device used to lower atmospheric pressure inside a vessel or piping system, it is highly efficient and needs a water seal to produce near-perfect vacuum
Vibration compensator	A device used to isolate vibration and/or noise from transmitting or being carried from pump, motor, etc. into a piping system (noise compensator; isolator)
Wet return	A steam condensate return line which is carrying only condensate
Wrap-around	A coil of gasket material used to wrap around pipe, when in the process of marking a square cutoff line

Steamfitter/Pipefitter National Occupational Analysis

ACRONYMS

CAD Computer Aided Design

DISS Diameter Index Safety System

FRP Fibreglass Reinforced Pipe

GMAW Gas metal arc welding

GPS Global Positioning Systems

HVAC Heating, ventilation and air conditioning

MSDS Material Safety Data Sheet

NDT Non-destructive testing

P&ID Process and Instrumentation Drawings

PPE Personal Protective Equipment

SMAW Shielded metal arc welding

TIG Tungsten inert gas

WHMIS Workplace Hazardous Materials Information System

APPENDIX B

REQUIRED ESSENTIAL SKILLS TASKS FOR TRADES

ESSENTIAL SKILL	
Technical Reading	<ul style="list-style-type: none"> ➤ Find and use information from one source - i.e., a book, Internet, and work order ➤ Find and use information from many parts of a single source - i.e., a code book ➤ Recognize what is important from several sources of information ➤ Interpret information using more than one source ➤ Apply information to the task
Document Use	<ul style="list-style-type: none"> ➤ Use large or difficult documents which are organized into units, headings, chapters, or sub-headings - i.e., a code book ➤ Find information in large or very specialized documents which may have many smaller documents - i.e., operations manuals, safety manuals ➤ Find information from many sources - i.e., code books, blueprints, work manuals ➤ Enter information into pre-set documents and forms - i.e., accident report forms, order forms ➤ Combine information from several sources and use it - i.e., alter a work order using information from code books, manuals and blueprints ➤ Create new documents using information from a variety of sources - i.e., create work orders, material lists, time-log sheets

ESSENTIAL SKILL	
Writing	<ul style="list-style-type: none"> ➤ Write information into a pre-set form – i.e., contract, lease, building permit ➤ Write short messages, explanations, requests or directions – i.e., write a work order, memo, written message for a foreman, supervisor or client ➤ Write longer messages, explanations, requests or directions – i.e., write an accident report, a detailed message to a foreman, supervisor or client ➤ Write a longer article which may need to be organized into headings with a table of contents, i.e. work report, section of a work manual ➤ Write detailed, non-routine articles – i.e., make recommendations, use technical language to give directions to or ask for information from other tradespeople
Math	<ul style="list-style-type: none"> ➤ Perform math calculations using formulas, fractions, decimals and percent ➤ Combine one or more math operations to solve a problem ➤ Estimate numbers ➤ Convert between Imperial and Metric measurement systems ➤ Solve equations ➤ Use trigonometry to solve problems (not a requirement in every trade)

ESSENTIAL SKILL	
Computer Use	<ul style="list-style-type: none"> ➤ Perform basic computer operations needed to produce a document – i.e., a letter ➤ Find information on the Internet ➤ Find information in workplace databases ➤ Send and receive email ➤ Enter data into a set format – i.e., form, spreadsheet, chart ➤ Manage electronic information – i.e., save files ➤ Choose and use the best software program for the task
Oral Communication	<ul style="list-style-type: none"> ➤ Take directions from a supervisor or co-workers on work-related projects ➤ Give directions to co-workers on work related projects ➤ Exchange information using trade terminology ➤ Provide details on facts ➤ Provide opinions on work-related projects ➤ Organize, present and interpret ideas in a logical manner ➤ Communicate one-on-one or in a group on complex work-related matters

ESSENTIAL SKILL	
Thinking Skills	<ul style="list-style-type: none"> ➤ Identify problems ➤ Apply learning from previous experiences to identify possible solutions to a problem ➤ Find, evaluate and choose appropriate information to solve a problem ➤ Evaluate the best possible solution to a problem ➤ Make decisions ➤ Plan and organize job tasks to set time-lines ➤ Ensure quality control standards are met
Working with Others	<ul style="list-style-type: none"> ➤ Complete tasks to industry standard under supervision ➤ Complete tasks to industry standard without supervision ➤ Complete assigned tasks to meet time-lines that meet project deadlines ➤ Accept feedback ➤ Give feedback ➤ Evaluate then apply recommendations from co-workers ➤ Resolve conflict ➤ Mentor an apprentice

ESSENTIAL SKILL	
Continuous Learning	<ul style="list-style-type: none"> ➤ Identify work/career strengths and areas for improvement ➤ Develop a work/career learning plan ➤ Set goals ➤ Participate in learning opportunities to meet workplace goals ➤ Apply new learning in the workplace environment ➤ Revisit, reflect and revise the learning plan regularly ➤ Engage in learning opportunities to keep skills current and meet career goals

