



Professional Skills Record

Plumber

NOC 7251

ACKNOWLEDGEMENTS

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Journeyperson's Handbook

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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 journeyperson, 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
Journeyperson Sign-off Task 1 <div style="display: flex; justify-content: space-between; align-items: center;"> Complete <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> Incomplete <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div>



Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.01 <u>Learning Objective</u> Uses hand tools JP Sign-off ____	1.01.01 Identify boring tools <div style="display: flex; justify-content: space-between;"> Rating ____ Complete </div> <div style="display: flex; justify-content: space-between;"> Proof ____ <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div> <div style="display: flex; justify-content: space-between;"> Use ____ <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div>	1.01.02 Identify hand cutting tools <div style="display: flex; justify-content: space-between;"> Rating ____ Complete </div> <div style="display: flex; justify-content: space-between;"> Proof ____ <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div> <div style="display: flex; justify-content: space-between;"> Use ____ <input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/> </div>
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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".

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

Learning Objectives



You might

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

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

Plumber

NOC 7251

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, they can 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
www.tradeessentials.ca

CANADIAN RED SEAL SITE
www.red-seal.ca

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Plumber Trade Information

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

Technical Skills Journey person 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 Plumber.

PSR Plumber 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 Certification Requirement

Trade Designation: Plumber National Occupational Classification (NOC) 7251

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 Plumber 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.”)

A document can prove valuable learning that is recognized by industry and learning institutions.
Record and save every document earned in industry, trade school or union.

Document Record							
Document Name	Issued By	Place Issued	Date Issued	Evidence of recognition for:			Recognition Awarded
				Block/s <u>Learning Category/s</u> Completed	Task/s <u>Learning Outcome/s</u> Completed	Academic Requirement	

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 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 journeyperson 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

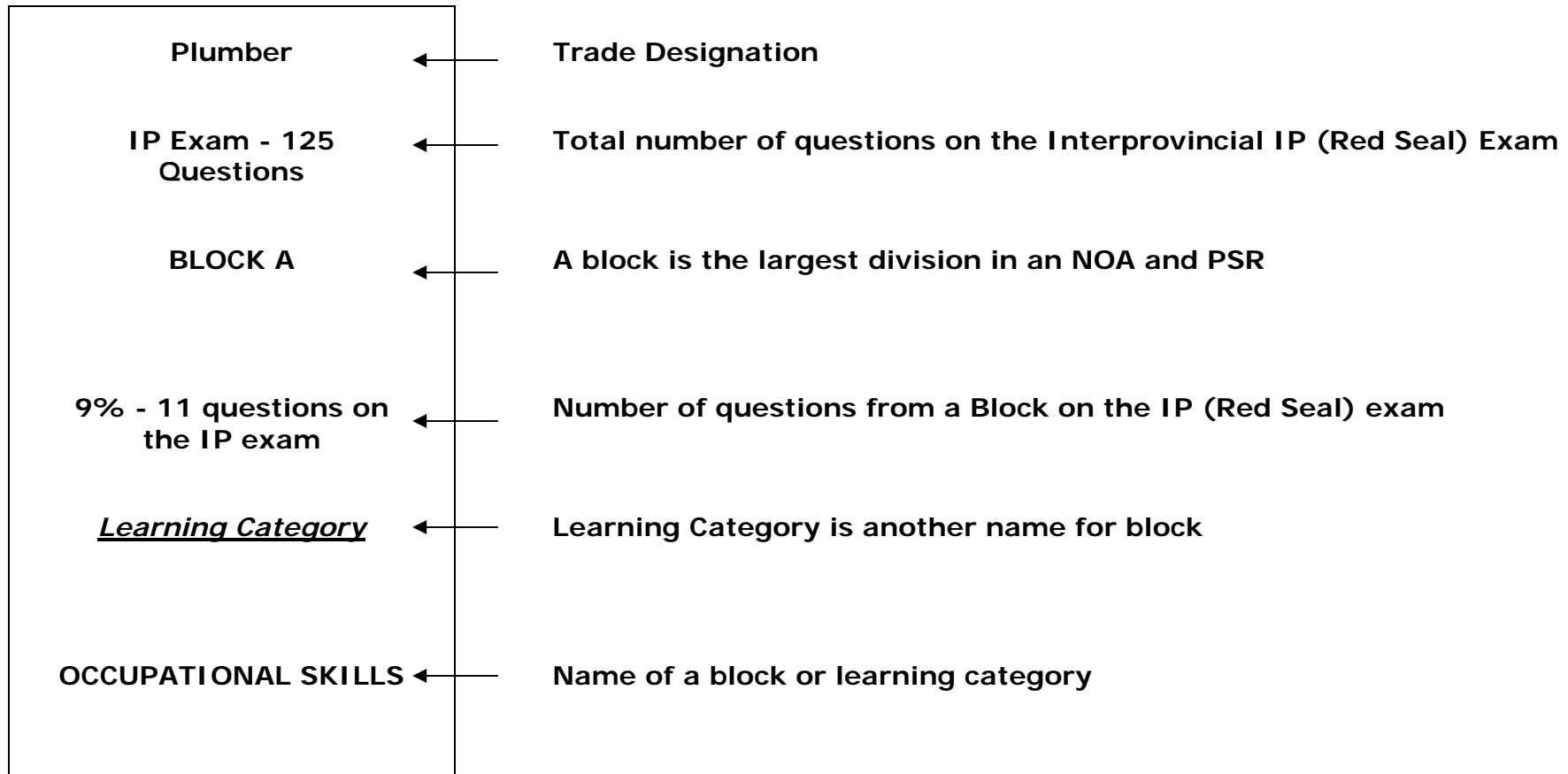
Completing this PSR can help you:

- ♦ 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

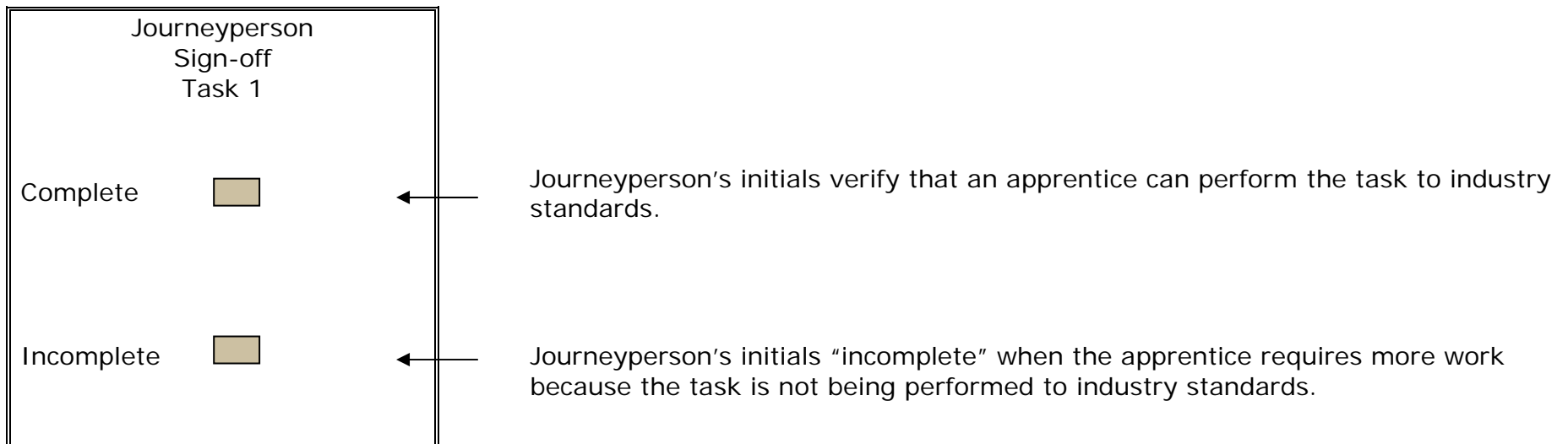
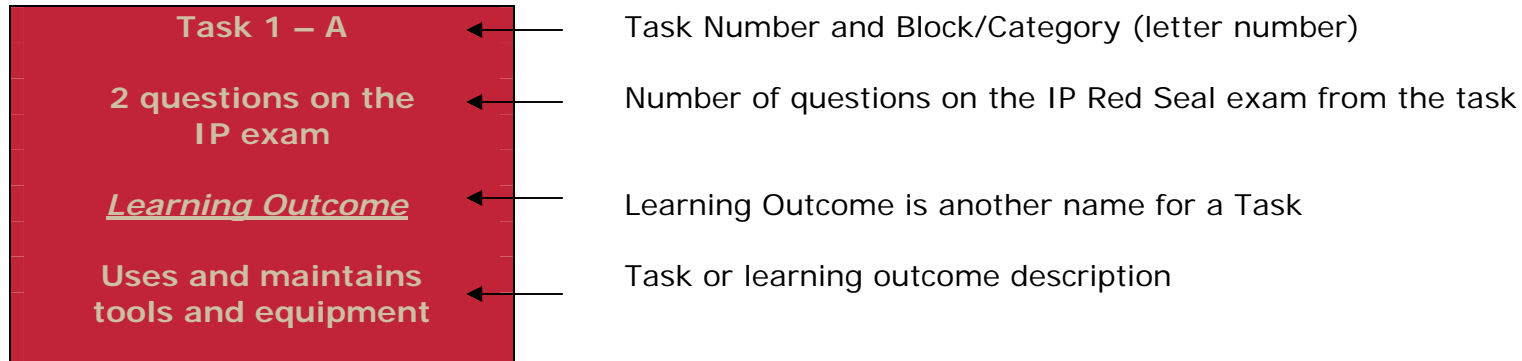
Professional Skills Record (PSR) Components

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)



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

Task 1 Learning Needs	
Sub-Tasks	
<u>Learning Objectives</u>	
To be completed	
Comments	

Journeyperson 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	
<u>Learning Objective</u>	
Maintains power tools	
JP Sign-off _____	

← Sub-Task Number

← Learning Objective is another name for sub-task

← Sub-task or learning objective description

← Journeyperson 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 electric, pneumatic and hydraulic

← 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*)

Plumber
IP Exam - 125 Questions

BLOCK A
9% - 11 questions on the IP exam

Learning Category
OCCUPATIONAL SKILLS

Task 1 - A
2 questions on the IP exam

Learning Outcome
Uses and maintains tools and equipment

Journeyperson
 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> Maintains power tools JP Sign-off ____	1.01.01 Identify types of hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.02 Clean and lubricate hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.03 Sharpen hand tools such as chisels and knives Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.04 Organize and store hand tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.01.05 Recognize worn, damaged or defective hand tools 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 electric, pneumatic and hydraulic Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.02 Clean and lubricate power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.03 Arrange to sharpen power tool accessories such as drill bits and reamers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.04 Organize and store power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.02.05 Recognize worn, damaged or defective power tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.02.06 Replace power tool components such as jaws on a power vice, saw blades and cutter wheels Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

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

Learning Outcome
Uses and maintains tools
and equipment

**Task 1
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.03 <u>Learning Objective</u> Maintains powder-actuated tools JP Sign-off ____	1.03.01 Identify types of powder-actuated tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.03.02 Acquire training and certification requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.03.03 Clean and lubricate powder-actuated tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.03.04 Store shots Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.03.05 Organize and store powder-actuated tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.03.06 Recognize worn, damaged or defective powder-actuated tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				
SUB-TASK 1.04 <u>Learning Objective</u> Maintains cutting and welding equipment JP Sign-off ____	1.04.01 Identify types of components of cutting and welding equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.02 Follow Transport of Dangerous Goods (TDG) regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.03 Use torch tip cleaners Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.04 Set gauges Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.05 Adjust gauges Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	1.04.06 Install gauges Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.07 Install spark arrestors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.08 Use bottle storage procedures such as chained to stand, screwed on caps and stored in carts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.09 Organize and store cutting and welding equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.04.10 Recognize worn, damaged or defective cutting and welding equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

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

Learning Outcome
**Uses and maintains
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 <u>Learning Objectives</u> to be completed Comments	SUB-TASK 1.05 <u>Learning Objective</u> Uses ladders and work platforms JP Sign-off ____	1.05.01 Identify types of ladders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.02 Determine types of work platforms such as scaffolds and power elevated work platforms (PEWPs) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.03 Apply training and regulations regarding operation of ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.04 Follow fall arrest equipment and requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.05 Follow operating procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
		1.05.06 Calculate the ratio to determine limitations of ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.07 Secure ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.08 Check ladders and work platforms prior to and during use Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.09 Organize and store ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.05.10 Recognize worn, damaged or defective ladders and work platforms Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	SUB-TASK 1.06 <u>Learning Objective</u> Uses rigging, hoisting and lifting equipment JP Sign-off ____	1.06.01 Identify and operate rigging, hoisting and lifting equipment components such as chain falls, come-alongs, slings, shackles, spreader bars, softeners and cables Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.02 Calculate limitations such as lifting weights and capacities Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.03 Include safety factors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.04 Determine appropriate knots Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.05 Meet requirements for hoisting and rigging certification Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
		1.06.06 Meet requirements for crane and operator certification Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.07 Keep load steady using tag line Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.08 Use hand signals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.09 Recognize and cut damaged slings prior to disposal Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	1.06.10 Organize and store rigging, hoisting and lifting equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

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

Learning Outcome
**Demonstrates common
trade practices**

Knowledge, Skills and Abilities - Competencies

1.06.11

Recognize worn, damaged or defective rigging, hoisting and lifting equipment

Rating ____ **Complete**

Proof ____ ☐

Use ____

**Task 1
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

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 hard hats, safety glasses and safety boots	1.07.02 Implement types of safety equipment such as first aid kits, eye wash kits and fire extinguishers	1.07.03 Follow PPE and safety equipment operating procedures	1.07.04 Complete training requirements for PPE and safety equipment	1.07.05 Determine and establish locations of PPE and safety equipment
	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 ____
	1.07.06 Acquire and follow workplace safety and health regulations and policies such as WHMIS and company safety policies	1.07.07 Select PPE and safety equipment	1.07.08 Maintain PPE and safety equipment	1.07.09 Store PPE and safety equipment	1.07.10 Recognize worn, damaged or defective PE and safety equipment
	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 ____

Task 2 - A
4 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> Uses documentation and reference material JP Sign-off _____	2.01.01 Apply all types of documentation such as plumbing code, and manufacturers', engineering and architectural specifications	2.01.02 Read all types of blueprints such as structural, architectural, mechanical and electrical	2.01.03 Interpret all types of field drawings such as isometric, orthographic and oblique	2.01.04 Examine shop drawings and specifications	2.01.05 Interpret site-specific documents such as change orders, site instructions and revisions
	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 ____
	2.01.06 Convert metric and imperial measurements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.07 Determine scope of work in documentation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.08 Produce drawings such as isometrics, plan and elevation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.09 Scale drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.10 Interpret drawings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.01.11 Complete checklists and work orders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.01.12 Produce as-built and sleeve drawings 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

SUB-TASK 2.02 <u>Learning Objective</u> Communicates with others JP Sign-off ____	2.02.01 Demonstrate and understanding of and use trade terminology Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.02 Use communication equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.03 Deliver and interpret verbal and written communication Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.04 Apply hand signals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.05 Communicate with tradespeople Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	2.02.06 Communicate with non-tradespeople such as owners, engineers and clients Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.07 Mentor apprentices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.08 Ask and answer job-related questions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.02.09 Follow instructions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
	SUB-TASK 2.03 <u>Learning Objective</u> Organizes materials and supplies JP Sign-off ____	2.03.01 Determine job requirements and sequencing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.02 Demonstrate an understanding of material availability Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.03 Do material take-offs Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.04 Determine and select material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.05 Coordinate material handling with other professionals and tradespeople Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.03.06 Schedule material delivery Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.07 Stack materials and supplies in order of use Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.03.08 Store, secure and lock up materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

**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

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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 2.04 <u>Learning Objective</u> Organizes project tasks and procedures JP Sign-off _____	2.04.01 Determine and estimate assigned work Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.02 Coordinate work performed by other tradespeople Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.03 Organize labour requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.04 Determine tool and equipment requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.05 Work with other trades Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.04.06 Estimate time and labour requirements to complete tasks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.07 Adapt to changing environmental conditions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.08 Identify sequence of tasks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.04.09 Understand tasks and directions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	SUB-TASK 2.05 <u>Learning Objective</u> Maintains safe work environment Continued next page	2.05.01 Implement company safety policies and guidelines Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.02 Participate in tool box talks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.03 Administer company safety briefs Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.04 Interpret WHMIS information such as labels and Material Safety Data Sheets (MSDS) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	2.05.06 Complete and administer hot work permits and fire watch Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.07 Establish the location of safety equipment and materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.08 Identify and display emergency contacts such as hospital addresses, health issues and utilities Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.09 Establish emergency procedures such as muster points and evacuation procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	2.05.10 Reference safety regulations 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					
SUB-TASK 2.05 <u>Learning Objective</u> Maintains safe work environment JP Sign-off _____	2.05.11 Maintain good housekeeping	2.05.12 Install temporary safety protection such as caution tape and signage	2.05.13 Recognize and correct unsafe conditions	2.05.14 Recognize materials with possible asbestos content	2.05.15 Report potential hazards
	Rating _____ Complete	Rating _____ Complete	Rating _____ Complete	Rating _____ Complete	Rating _____ Complete
	Proof _____ <input type="checkbox"/>	Proof _____ <input type="checkbox"/>	Proof _____ <input type="checkbox"/>	Proof _____ <input type="checkbox"/>	Proof _____ <input type="checkbox"/>
	Use _____	Use _____	Use _____	Use _____	Use _____

Task 3 - A
5 questions on the IP exam

Learning Outcome
Performs routine trade activities

Journey person
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
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 3.01 <u>Learning Objective</u> Installs piping support and hanger systems JP Sign-off _____	3.01.01 Classify types of supports and hangers	3.01.02 Determine piping material being supported	3.01.03 Select anchors, guides and slide plates	3.01.04 Calculate support and hanger spacing and size of rods	3.01.05 Select types of fasteners such as beam clamps, drop-in anchors, draw bolts and toggle bolts
	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 ____
	3.01.06 Determine interferences Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.07 Determine thickness of insulation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.08 Perform calculations such as elevations of hangers, length of rods and spacing of hangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.09 Fabricate supports and hangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.10 Attach supports and hangers to building structure Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.01.11 Reference support details Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.01.12 Select and use tools and equipment such as powder-actuated tools and rotary hammers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

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

Learning Outcome
**Performs routine trade
activities**

**Task 3
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 3.02 <u>Learning Objective</u> Installs sleeves JP Sign-off ____	3.02.01 Determine requirements for sleeve installation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.02 Schedule timing for installing sleeves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.03 Determine sleeve requirements such as fire stopping around the pipe, water-proofing, isolating groundwater, protecting pipe and preventing oxidization Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.04 Size sleeves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.05 Position and secure sleeves using fasteners Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.02.06 Fabricate sleeves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.02.07 Protect sleeve during concrete pour Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 3.03 <u>Learning Objective</u> Tests piping and plumbing systems JP Sign-off ____	3.03.01 Classify test procedures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.02 Implement testing safety Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.03 Calculate gauge assemblies and calibration Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.04 Isolate system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.05 Pressurize and depressurize system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.03.06 Determine type of test required such as water, air, nitrogen and smoke Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.07 Detect leaks, cracks or defects Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.08 Use test equipment such as plugs, balls and double-test plug Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.09 Secure surrounding test area with caution tape and barriers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.03.10 Perform hydrostatic testing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.03.11 Document testing in test reports Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

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

Learning Outcome
Performs routine trade activities

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 3.04 <u>Learning Objective</u> Commissions systems JP Sign-off _____	3.04.01 Perform pre-commissioning checks and procedures	3.04.02 Determine appropriate startup of pumps, mixing valves and controls	3.04.03 Estimate makeup water pressure	3.04.04 Interpret water quality inspection reports	3.04.05 Fill system
	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 ____
	3.04.06 Isolate system	3.04.07 Clean, degrease and flush system	3.04.08 Take water sample for testing	3.04.09 Record information on spool sheets such as heat numbers, drawing number and material grade	3.04.10 Apply markings such as pipe ID, valve tagging and equipment labelling
	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 ____
	3.04.11 Set sensors and controls	3.04.12 Mark drawings with as-built information	3.04.13 Complete commissioning checklist	3.04.14 Instruct others on system use and care	3.04.15 Provide operation and maintenance manuals to owners
	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 ____
	3.04.16 Coordinate start-up with manufacturer				
	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

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

Learning Outcome
**Performs routine trade
activities**

**Task 3
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 3.05</p> <p><u>Learning Objective</u> Performs lock-out and tag-out procedures</p> <p>JP Sign-off _____</p>	<p>3.05.01 Identify piping system being worked on</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.05.02 Determine components that require lock-out such as pumps, valves and electrical panels</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.05.03 Apply lock-out identification requirements</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.05.04 Determine situations requiring lock-out such as equipment shutdowns, regular maintenance, start- ups and testing</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.05.05 Lock out valves and equipment using chains, locks and tags</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>3.05.06 Fabricate and install isolating devices such as blind flanges and spades</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				
<p>SUB-TASK 3.06</p> <p><u>Learning Objective</u> Protects piping systems and equipment from damage</p> <p>JP Sign-off _____</p>	<p>3.06.01 Demonstrate an understanding of piping and plumbing equipment</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.06.02 Locate frost protection such as electric tracer, frost boxes and circulating pumps</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.06.03 Apply ultraviolet protection</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.06.04 Apply corrosion protection such as coatings and tape</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.06.05 Determine physical damage protection such as protective plates, smash plates, grommets and underground sleeving</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>3.06.06 Use protective measures such as insulating, water treatment and dielectric protection</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>3.06.07 Install vibration protection components such as rubber pucks, spring isolators and flex expansion couplings</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>			

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

Learning Outcome
**Performs routine trade
activities**

**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
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 3.07 <u>Learning Objective</u> Coordinates excavation and backfilling of trenches JP Sign-off _____	3.07.01 Determine soil conditions and shoring requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.07.02 Calculate degree of excavation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.07.03 Recognize responsibilities of excavator contractor Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.07.04 Schedule required heave equipment for excavation and backfilling Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.07.05 Determine backfilling conditions according to specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.07.06 Determine finish grade Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.07.07 Coordinate the locating of underground services such as power lines, water mains, sewer lines and gas lines Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 3.08 <u>Learning Objective</u> Installs fire stopping systems JP Sign-off _____	3.08.01 Recognize all types of fire stopping systems such as doughnut type, gasket-type, caulking and mineral wool Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.08.02 Determine fire rating requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.08.03 Calculate required gaps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.08.04 Follow fire codes, specifications and requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.08.05 Select sealants according to specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.08.06 Seal vertical and horizontal penetrations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.08.07 Fasten or wrap fire stopping to pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

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

Learning Outcome
**Performs routine trade
activities**

**Task 3
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 3.09 <u>Learning Objective</u> Inspects pipe, tub and fittings before installation JP Sign-off _____	3.09.01 Determine inspection requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.02 Identify potential defects such as pin holes, cracked fittings, bent ends, uneven casting and damaged pipe and coatings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.03 Manage the effect of environmental conditions on pipe, tube and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.04 Demonstrate an understanding of characteristics of pipe and tube such as weight, density and corrosion resistance Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.05 Use visual inspection techniques Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	3.09.06 Sound cast iron pipe and fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.07 Interpret pipe and fitting markings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.08 Check against specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.09 Check and record Canadian Registration Number (CRN) on fittings and materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	3.09.10 Check and record heat treatment numbers on steel pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

Plumber

BLOCK B
11% - 14 Questions on the IP exam

Learning Category
PIPING PREPARATION AND ASSEMBLY

Task 4 - B
4 questions on the IP exam

Learning Outcome
Prepares and joins copper tube, tubing and fittings

Journey person
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> Cuts copper tube and tubing JP Sign-off _____	4.01.01 Identify all types and sizes of tube such as K, L, M, and drain, waste and vent (DWV) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.02 Demonstrate an understanding of types and sizes of tubing such as medical gas, air conditioning and refrigeration (ACR), gas (G) and general purpose (GP) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.03 Perform standard measuring procedures such as centre to centre, end to centre, and end to end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.04 Select tube and tubing to confirm to applicable code Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.05 Calculate tube and tubing length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	4.01.06 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.07 Measure tube and tubing length Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.08 Use types of cutters such as ratchet, minis and power Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.09 Ream tube and tubing after cutting using tools such as reaming tools and files Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.01.10 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
SUB-TASK 4.02 <u>Learning Objective</u> Bends copper tube and tubing JP Sign-off _____	4.02.01 Recognize types and sizes of tube such as K and L Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.02 Demonstrate an understanding of types and sizes of tubing such as air conditioning and refrigeration (ACR), gas (G) and general purpose (GP) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.03 Recognize restrictions on bending of tube and tubing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.04 Perform measuring procedures such as gain or loss, centre to centre and measuring of angles Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.05 Calculate common angles such as 90°, 45° and 22.5° Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	4.02.06 Determine applications commonly requiring bending such as fixture finishing, instrumentation and oil lines Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.07 Locate bend on tube and tubing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	4.02.08 Select and use benders such as ratchet, power and crank Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**Task 4 - B
(cont'd)**

Learning Outcome
Prepares and joins
copper tube, tubing and
fittings

**Task 4
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<div>SUB-TASK</div> <div>4.03</div> <div>Learning Objective</div> <div>Joints copper tube and tubing</div> <div>JP Sign-off _____</div>	<div>4.03.01</div> <div>Perform joining methods such as brazing, soldering, flaring, roll groove and using compression fittings</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.02</div> <div>Determine then select types of gaskets, fittings and lubricants</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.03</div> <div>Identify tube and tubing compatibility with the intended use such as water, oil and gas (WOG)</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.04</div> <div>Select all types of fluxes for joining copper tube and tubing</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.05</div> <div>Apply methods of preventing electrolysis</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>4.03.06</div> <div>Calculate thermal expansion and contrac- tion of tube and tubing</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.07</div> <div>Clean tube and tubing and fittings for joining methods such as soldering and brazing</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.08</div> <div>Select and use tools and equipment such as T-extracting tools, torch and flaring tools</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.09</div> <div>Select type of solder according to tube contents and operating temperature</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.10</div> <div>Roll groove tube using power and hand groovers</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>4.03.11</div> <div>Assemble a groove and shoulder joint</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.12</div> <div>Solder/braze copper tube and tubing</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.13</div> <div>Flare and swedge tube and tubing</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.14</div> <div>Protect surrounding area when using torches or open flame</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>4.03.15</div> <div>Pre-assemble copper tube and tubing prior to installation</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>4.03.16</div> <div>Follow specified sequence of bolt tensioning</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>				

Task 5 - B
3 questions on the IP exam

Learning Outcome
Prepares and joins plastic pipe

Journeyperson
Sign-off
Task 5

Complete ☐

Incomplete ☐

Task 5
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 5.01 <u>Learning Objective</u> Cuts plastic pipe JP Sign-off ____	5.01.01 Classify grades and composition of plastic pipe such as acrylonitrile-butadiene-styrene (ABS), polyvinyl chloride (PVC) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.02 Perform standard measuring procedures such as centre to centre, end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.03 Calculate pipe length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.04 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.05 Select and use tools and equipment such as hacksaws, chopsaws and plastic pipe cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	5.01.06 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.01.07 Recognize hazards of cutting fibreglass pipe such as dust and exposed fibres Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 5.02 <u>Learning Objective</u> Joins plastic pipe Continued next page	5.02.01 Classify grades and composition of plastic pipe such as ABS, PVC and PEX Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.02 Perform joining methods such as heat fusion welding, threading, solvent welding and using compression fittings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.03 Recognize characteristics of solvent cements, primers and transition glues such as working time and set-up time Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.04 Determine pipe applications such as drainage, water and chemicals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.05 Determine compatibility of plastic pipe with solvents and glues Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	5.02.06 Determine plastic pipe contents such as water, natural gas and chemicals Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.07 Interpret labelling of plastic pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.08 Recognize hazards such as inadequate ventilation, fire and corrosive materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.09 Use tools and equipment such as manufacturer-specific crimping tools, heat fusion tools and expansion/contraction tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	5.02.10 Shave, bevel and grind fibreglass pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

5 - B
(cont'd)

Learning Outcome
Performs hand processes

Task 5
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies			
<div> <div>SUB-TASK</div> <div>5.02</div> <div>continued</div> <div>Learning Objective</div> <div>Joins plastic pipe</div> </div>	<div>5.02.11</div> <div>Apply solvents and glues</div>	<div>5.02.12</div> <div>Pre-assemble plastic pipe prior to installation</div>	<div>5.02.13</div> <div>Follow specified sequence of bolt tensioning</div>
	<div>Rating</div> <div>Proof</div> <div>Use</div>	<div>Rating</div> <div>Proof</div> <div>Use</div>	<div>Rating</div> <div>Proof</div> <div>Use</div>
	<div>Complete</div> <div></div>	<div>Complete</div> <div></div>	<div>Complete</div> <div></div>

6 - B
3 questions on the IP exam
Learning Outcome
Prepares and joins steel pipe

Journey person
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> Cuts steel pipe JP Sign-off _____	6.01.01 Identify schedules and weights of steel pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.02 Perform standard measuring procedures such as centre to centre, end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.03 Calculate pipe length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.04 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.05 Select and use types of cutters such as one- wheel, three-wheel and four-wheel Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	6.01.06 Deburr steel pipe using tools such as grinders, files and reamers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.07 Prepare pipe end for weld by methods such as bevelling and mitering Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.01.08 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 6.02 <u>Learning Objective</u> Joins steel pipe Continued next page	6.02.01 Identify schedules and weights of steel pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.02 Classify types of steel pipe such as stainless steel and carbon steel Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.03 Perform joining methods such as threading, welding, grooving and mechanical compression Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.04 Identify types and grades of fittings such as cast iron, malleable iron and forged steel Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.05 Identify types and grades of fastening hardware such as studs, bolts and nuts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	6.02.06 Use tools and equipment such as crimping tools, hand and power dies, and hand and power groovers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.07 Thread steel pipe by machine and hand Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.08 Fit up steel pipe and fittings for welding Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.09 Recognize hazards such as open flame, electrical hazards and moving machinery Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	6.02.10 Pre-assemble steel pipe prior to installation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

6 - B
(cont'd)

Learning Outcome
Prepares and joins steel pipe

Task 6
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies				
<div> <div>SUB-TASK</div> <div>6.02</div> <div>continued</div> <div>Learning Objective</div> <div>Joins steel pipe</div> </div> <div>JP Sign-off _____</div>	<div>6.02.11</div> <div>Select gasket and gasket material</div> <div> <div>Rating</div> <div>Proof</div> <div>Use</div> </div> <div> <div>Complete</div> <div><div></div></div> </div>	<div>6.02.12</div> <div>Select joining compounds such as silicone-free, teflon and pulverized lead according to system contents and piping material</div> <div> <div>Rating</div> <div>Proof</div> <div>Use</div> </div> <div> <div>Complete</div> <div><div></div></div> </div>	<div>6.02.13</div> <div>Make gaskets</div> <div> <div>Rating</div> <div>Proof</div> <div>Use</div> </div> <div> <div>Complete</div> <div><div></div></div> </div>	<div>6.02.14</div> <div>Follow specified sequence of bolt tensioning</div> <div> <div>Rating</div> <div>Proof</div> <div>Use</div> </div> <div> <div>Complete</div> <div><div></div></div> </div>

7 - B
2 questions on the IP exam

Learning Outcome
Prepares and joins cast iron pipe

Journeyperson
Sign-off
Task 7

Complete ☐

Incomplete ☐

Task 7
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

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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

SUB-TASK 7.01 <u>Learning Objective</u> Cuts case iron pipe JP Sign-off ____	7.01.01 Determine weights of cast iron pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.02 Perform standard measuring procedures such as centre to centre, end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.03 Recognize hazards of cutting cast iron pipe such as projectile pieces and dust from chop saw Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.04 Calculate pipe length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.05 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	7.01.06 Select and use types of cutters such as grinders, chop saws and snap cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.07 Support and secure pipe for cutting Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.01.08 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 7.02 <u>Learning Objective</u> Joins cast iron pipe JP Sign-off ____	7.02.01 Perform joining methods such as using mechanical joints, and hub and spigot Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.02 Determine types of joining materials such as rubber, lead and oakum, and cold caulking compounds Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.03 Apply code requirements for joint construction Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.04 Follow manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.05 Recognize hazards of joining cast iron pipe such as repetitive stress injuries and working with hot lead Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	7.02.06 Use tools and equipment such as nut drivers, torque wrenches, packing irons and finishing irons Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.07 Install joining materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.08 Install clamps in proper position and with even tension Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.09 Transition from different materials or sizes of pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	7.02.10 Join ductile cast iron pipe for pressure applications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

8 - B
1 question on the IP exam

Learning Outcome
Prepares and joins glass pipe

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> Cuts glass pipe JP Sign-off ____	8.01.01 Demonstrate an understanding of properties of glass pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.02 Perform standard measuring procedures such as centre to centre, end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.03 Recognize hazards of cutting glass pipe such as shards and sharp edges Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.04 Calculate pipe length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.05 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	8.01.06 Select and use types of cutters such as internal and external glass cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.07 Support and secure pipe for cutting Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.08 Clean glass pipe prior to cutting Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.09 Purge and neutralize pipe and fittings in existing systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.01.10 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
SUB-TASK 8.02 <u>Learning Objective</u> Joins glass pipe JP Sign-off ____	8.02.01 Select glass pipe coupling configurations such as bead to bead, and bead to plain end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.02 Establish use for pipe contents such as water, acid waste and corrosive waste Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.03 Determine fittings used for glass pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.04 Establish function of teflon lining in clamps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.05 Assemble pipe and fittings in place Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	8.02.06 Torque clamps to manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.07 Use tools and equipment such as ratchets, torque wrenches and nut drivers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	8.02.08 Transition from different materials or sizes of pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

9 - B
1 question on the IP exam

Learning Outcome
Prepares asbestos-cement pipe

Journeyperson
Sign-off
Task 9

Complete ☐
Incomplete ☐

Task 9
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 9.01 <u>Learning Objective</u> Cuts asbestos-cement pipe JP Sign-off ____	9.01.01 Demonstrate an understanding of properties of asbestos-cement pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.02 Recognize applications of asbestos-cement pipe such as sanitary and storm drainage Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.03 Perform standard measuring procedures such as centre to centre, end to centre, and end to end Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.04 Recognize hazards of cutting pipe such as dust from quick-cut saw and weight of pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.05 Calculate pipe length and fitting allowances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	9.01.06 Calculate offsets and rolling offsets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.07 Select and use types of cutters such as quick-cut saw and snap cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.08 Limit dust by applying water when cutting Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.09 Support and secure pipe for cutting Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.01.10 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
SUB-TASK 9.02 <u>Learning Objective</u> Joins asbestos-cement pipe JP Sign-off ____	9.02.01 Perform joining methods such as hub and spigot, and mechanical joints Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.02.02 Select types of fittings such as cast iron and asbestos-cement Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.02.03 Use tools and equipment such as wrenches, ratchets and pulling tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.02.04 Assemble pipe and fittings in place Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.02.05 Torque clamps to manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	9.02.06 Transition from different materials or sizes of pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	9.02.07 Bevel end of pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

Plumber

BLOCK C
24% - 30 Questions on the IP exam

Learning Category
DRAINAGE, WASTE, VENTS AND PRIVATE SEWAGE DISPOSAL SYSTEMS

10 - C
6 questions on the IP exam

Learning Outcome
Installs sewers

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> Sizes pipe for sewers JP Sign-off _____	10.01.01 Calculate hydraulic load expressed in number of litres and fixture units	10.01.02 Apply applicable codes	10.01.03 Interpret sizing tables	10.01.04 Convert continuous and semi continuous flows to hydraulic load	10.01.05 Convert between imperial and metric measures
	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 ____
	10.01.06 Convert from US gallons to imperial gallons	10.01.07 Convert between fixture units and litres	10.01.08 Calculate slope		
	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 10.02 <u>Learning Objective</u> Installs manholes and catch basins JP Sign-off _____	10.02.01 Determine manhole applications such as cleanout, change of direction and evaluation	10.02.02 Determine catch basin application	10.02.03 Determine manhole and catch basin construction	10.02.04 Determine soil conditions	10.02.05 Level the bed
	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 ____
	10.02.06 Use levelling tools and equipment such as builder's levels, laser levels and sighting rods	10.02.07 Use lifting equipment such as lifting bar, lifting lugs and slings	10.02.08 Position manholes and catch basins	10.02.09 Assemble sections of manholes and catch basins	10.02.10 Apply gaskets and sealants
	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 ____
	10.02.11 Set elevation of manholes and catch basins	10.02.12 Locate entry and exit points	10.02.13 Make penetrations in manholes for vents, and entry and exit points	10.02.14 Seal penetration points	10.02.15 Channel bottom of manhole to direct waste
	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 ____

10 - C
(cont'd)

Learning Outcome
Installs sewers

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 10.03 <u>Learning Objective</u> Installs piping for sewers JP Sign-off _____	10.03.01 Select types of piping such as plastic, concrete and cast iron Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.02 Determine soil conditions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.03 Apply applicable codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.04 Practice excavation safety Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.05 Lay out pipe routes for sewers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	10.03.06 Determine and place bedding material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.07 Use levelling tools and equipment such as builder's levels, laser levels and sighting rods Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.08 Install cleanouts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.09 Connect to public or private sewer line Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	10.03.10 Distinguish between sanitary and storm sewers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	10.03.11 Calculate slope Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

11 - C
5 questions on the IP exam

Learning Outcome
Installs private sewage disposal systems

Journeyperson
Sign-off
Task 11

Complete ☐

Incomplete ☐

Task 11
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<div>SUB-TASK 11.01</div> <div>Learning Objective Plans installation of private sewage disposal systems</div> <div>JP Sign-off _____</div>	<div>11.01.01</div> <div>Determine types of private sewage disposal systems such as septic tanks, packaged sewage treatment plants and absorption fields</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.02</div> <div>Determine private sewage disposal system components such as tanks, absorption fields and pump chambers</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.03</div> <div>Apply applicable jurisdictional codes and regulations</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.04</div> <div>Identify soil conditions</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.05</div> <div>Determine limiting factors for location of private sewage disposal systems such as undesirable soil conditions, location of property boundaries and water table elevation</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>
	<div>11.01.06</div> <div>Size pump</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.07</div> <div>Determine proximity of potable water sources and courses</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.08</div> <div>Determine soil conditions such as type and structure of soil, and percolation rate</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.09</div> <div>Calculate expected daily sewage volume</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.01.10</div> <div>Select type of private sewage disposal system based on factors such as soil conditions and limiting factors</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>
	<div>11.01.11</div> <div>Prepare and submit a site plan</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>				

<div>SUB-TASK 11.02</div> <div>Learning Objective Installs private sewage disposal system components</div> <div>JP Sign-off _____</div>	<div>11.02.01</div> <div>Select all types of components such as pumps, distribution piping, septic tanks, distribution boxes, and bell-and-siphons</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.02</div> <div>Identify types of tanks such as septic, aeration, holding and pumping chambers</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.03</div> <div>Determine soil conditions</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.04</div> <div>Select gaskets and sealants</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.05</div> <div>Set and level bed for tanks</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>
	<div>11.02.06</div> <div>Set elevations of septic tanks and distribution piping</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.07</div> <div>Use levelling tools and equipment such as builder's levels, laser levels and sighting rods</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.08</div> <div>Position components</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	<div>11.02.09</div> <div>Apply gaskets and sealants</div> <div>Rating _____ Complete Proof _____ <div></div> Use _____</div>	

12 - C
19 questions on the IP exam
Learning Outcome
Installs rough-in for interior drainage, waste and vent 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

Journeyperson
 Sign-off
 Task 12

Complete ☐
 Incomplete ☐

Task 12
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 12.01 <u>Learning Objective</u> Sizes pipe for interior drainage, waste and vent systems JP Sign-off _____	12.01.01 Calculate hydraulic load expressed in number of litres and fixture units Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.02 Apply applicable codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.03 Use terminology such as wet vent, trap arm and building drain Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.04 Determine types of vents such as continuous, wet and dry Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.05 Interpret applicable sizing tables Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.01.06 Convert continuous and semi-continuous flows to hydraulic load Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.07 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.08 Convert from US gallons to imperial gallons Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.09 Calculate slope Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.01.10 Calculate rainwater hydraulic load Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.01.11 Calculate developed length Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

**12 - C
(cont'd)**

Learning Outcome
**Installs rough-in for
interior drainage, waste
and vent systems**

**Task 12
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 12.02 <u>Learning Objective</u> Installs underground piping and components for interior drainage, waste and vent systems JP Sign-off ____	12.02.01 Select all types of piping and fittings used in underground applications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.02 Select types of components such as interceptors, backwater valves and cleanouts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.03 Apply applicable codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.04 Determine soil conditions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.05 Lay out underground pipe routes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.02.06 Set grades and elevations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.07 Determine and place bedding material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.08 Use levelling tools and equipment such as builder's levels, laser levels and sighting rods Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.09 Distinguish between sanitary and storm systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.02.10 Install sewage pumps and sump pumps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
SUB-TASK 12.03 <u>Learning Objective</u> Installs embedded components JP Sign-off ____	12.03.01 Select types of embedded components such as floor drains, roof drains, sleeves, sumps, sewage tanks and trap seal primers (TSP) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.03.02 Determine embedded component material Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.03.03 Calculate finished elevation of components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.03.04 Assemble components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.03.05 Lay out and position components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.03.06 Stabilize components using materials such as styrofoam pieces, under-deck clamps and tie wire Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.03.07 Connect components to piping system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

**12 - C
(cont'd)**

Learning Outcome
Installs rough-in for
interior drainage, waste
and vent 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

SUB-TASK 12.04 <u>Learning Objective</u> Installs piping and components for interior drainage, waste and vent systems above-ground JP Sign-off _____	12.04.01 Select types of piping and fittings used in above-ground applications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.02 Select types of components such as interceptors, floor drains and cleanouts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.03 Select pipe support methods such as hangers, riser clamps and attachment hardware Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.04 Lay out above-ground pipe routes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.05 Set grades and elevations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	12.04.06 Use tools and equipment such as tape measures, torches and levels Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.07 Distinguish between sanitary and storm systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	12.04.08 Install flashings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**Task 12
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

Plumber

BLOCK D
15% - 19 Questions on the IP exam

Learning Category
WATER SERVICE AND DISTRIBUTION

13 - D
4 questions on the IP exam

Learning Outcome
Installs water services

Journeyperson
Sign-off
Task 13

Complete ☐

Incomplete ☐

Task 13
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 13.01 <u>Learning Objective</u> Sizes pipe for water services JP Sign-off _____	13.01.01 Apply plumbing codes Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.01.02 Calculate fixture units Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.01.03 Identify types of fixtures Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.01.04 Determine supply water pressure at the main Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.01.05 Calculate water requirement for fire suppression systems Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____
	13.01.06 Interpret water pipe sizing tables Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.01.07 Calculate pipe size using the height of the highest fixture in a building, the developed length of the water line and fixture units served Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____			
SUB-TASK 13.02 <u>Learning Objective</u> Installs piping for water services JP Sign-off _____	13.02.01 Select piping materials such as copper, plastic, epoxy-coated and stainless steel Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.02 Determine joining methods such as flaring, brazing, welding, flanged, compression and mechanical joint (bell and spigot) Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.03 Recognize hazards of installing piping such as working in trenches and overhead hazards Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.04 Perform mathematical calculations such as elevations and amount of bedding material required Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.05 Select and use tools and equipment such as torches, grooving tools, flaring tools and tubing cutters Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____
	13.02.06 Install pipe protection and bedding Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.07 Measure pipe lengths Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.08 Install piping components such as fittings, valves and valve boxes Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	13.02.09 Select and install restraining systems such as thrust blocks, anchors and guides Rating _____ Complete Proof _____ <input type="checkbox"/> Use _____	

13 - D
(cont'd)

Learning Outcome
Installs water services

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 13.03 <u>Learning Objective</u> Installs water service equipment JP Sign-off _____	13.03.01 Apply codes and jurisdictional regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.03.02 Select types of water service equipment such as water meters, flow restrictors and pressure reducing valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.03.03 Determine frost protection methods such as recirculation, frost box and heat tracing Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.03.04 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.03.05 Select and install components such as isolation valves, bypasses, meters and pressure reducing valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	13.03.06 Select and install restraining systems such as thrust blocks, anchors and guides Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	13.03.07 Work with other tradespeople to coordinate wiring connections Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

14 - D
10 questions on the IP exam

Learning Outcome
Installs water services

Journey person
 Sign-off
 Task 14

Complete ☐

Incomplete ☐

Task 14
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 14.01	14.01.01 Apply plumbing codes	14.01.02 Calculate fixture units	14.01.03 Identify types of fixtures	14.01.04 Measure supply water pressure at the main	14.01.05 Measure minimum and maximum water pressure
	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 ____
	14.01.06 Interpret water pipe sizing tables Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.01.07 Calculate pipe size using the height of the highest fixture in a building, the developed length of the water line and fixture units served Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.01.08 Convert between imperial and metric measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.01.09 Consider fixture units served by the distribution system when sizing equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
SUB-TASK 14.02	14.02.01 Apply codes and jurisdictional regulations	14.02.02 Select piping materials such as copper, plastic, epoxy-coated and stainless steel	14.02.03 Assemble types of piping configurations such as branch and home run	14.02.04 Perform joining methods such as soldering, brazing, crimping, welding, flanged, compression and mechanical joint (bell and spigot)	14.02.05 Calculate rough-in requirements for piping of equipment and fixtures
	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 ____
	14.02.06 Determine evaluations and routing for potable water distribution Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.02.07 Select and use tools and equipment such as torches, flaring tools and tubing cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.02.08 Measure pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.02.09 Install piping components such as fittings, valves and expansion joints 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
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 14.03 <u>Learning Objective</u> Installs potable water distribution equipment JP Sign-off ____	14.03.01 Identify all types of potable water distribution equipment such as hot water storage tanks and hot water recirculation systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.02 Identify domestic hot water heating equipment such as boilers and heat exchangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.03 Identify all types of potable water distribution components such as pressure reducing valves and pressure relief valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.04 Calculate minimum and maximum allowable pressures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.05 Select tempered water valves and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	14.03.06 Determine requirements for isolation of equipment and fixtures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.07 Select and use tools and equipment such as rigging equipment, power tools and torches Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.08 Select equipment according to application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.09 Make piping connections to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.03.10 Position isolation valves for equipment and fixtures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

SUB-TASK 14.04 <u>Learning Objective</u> Installs cross-connection control devices JP Sign-off ____	14.04.01 Identify all f types of cross-connection control devices such as double check valve assemblies, reduced pres-sure principle devices and atmospheric vacuum breakers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.02 Apply applicable codes and jurisdictional regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.03 Calculate installation requirements such as height, location and accessibility Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.04 Apply certification requirements for testing and certifying of cross-connection control devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.05 Assess level of hazard such as minor, moderate and severe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	14.04.06 Select cross-connection control device according to hazards and application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.07 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.08 Test cross-connection control devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	14.04.09 Recognize defective cross-connection control devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

15 - D
5 questions on the IP exam

Learning Outcome
Installs pressure 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> Sizes pressure systems JP Sign-off ____	15.01.01 Identify all types of pumps such as submersible, and shallow and deep-well jet Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.02 Identify components of pressure systems such as pressure switches and pressure tanks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.03 Determine system requirements such as pressure and demand Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.04 Calculate friction loss and head pressure Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.05 Determine voltage and horsepower requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	15.01.06 Calculate pressure tank draw downs and pressure differences from tank to highest fixture Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.07 Select pumps and expansion tanks according to application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.01.08 Interpret pump curves and charts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 15.02 <u>Learning Objective</u> Installs piping for pumps JP Sign-off ____	15.02.01 Select all types of piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.02 Calculate pump requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.03 Identify grades of polyethylene pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.04 Identify all types of well connections such as torque arrestors, check valves and strainers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.05 Select accessories such as torque arrestors, check valves and strainers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	15.02.06 Determine heat tracing systems and insulation requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.07 Determine piping installation procedures for different types of pressure systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.08 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	15.02.09 Fit torque arrestors to pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

15 - D
(cont'd)

Learning Outcome
Installs pressure 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

SUB-TASK 15.03 <u>Learning Objective</u> Installs pumps and accessories JP Sign-off _____	15.03.01	15.03.02	15.03.03	15.03.04	15.03.05
	Identify all types of pumps such as submersible, and shallow and deep-well jet	Identify all types of accessories such as gauges, pressure and level switches, pressure tanks and pressure tank tees	Determine voltage and horsepower pump requirements	Identify types of piping materials	Determine types of well connections such as pitless adaptors and well seals
	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 ____
	15.03.06 Determine locations of pumps such as in buildings, wells, rivers and lakes	15.03.07 Select and use tools and equipment	15.03.08 Select grade of polyethylene pipe for submersible application	15.03.09 Fit torque arrestors to pipe	15.03.10 Adapt pump installation method according to location
	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 ____
	15.03.11 Coordinate and install heat tracing	15.03.12 Adjust pressure switches	15.03.13 Coordinate power connections to pump and heat trace	15.03.14 Install vibration isolation for pump	15.03.15 Provide submersible pump support such as stainless steel cable and aviation cable
	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 ____

BLOCK E
11% - 14 Questions on the IP exam

Learning Category
FIXTURES, APPLIANCES AND WATER TREATMENT SYSTEMS

16 - E
9 questions on the IP exam

Learning Outcome
Installs plumbing fixtures and appliances

Journeyperson
 Sign-off
 Task 16

Complete ☐

Incomplete ☐

Task 16
Learning Needs

Sub-Tasks
Learning Objectives
 to be completed
 Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 16.01 <u>Learning Objective</u> Installs fixture supports JP Sign-off ____	16.01.01 Identify all types of fixtures such as water closets, basins, urinals and drinking fountains Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.02 Determine types of supports such as carriers, blocking and wall hangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.03 Measure mounting height Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.04 Determine wall and floor material and construction Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.05 Determine types of fasteners such as anchors and bolts Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	16.01.06 Measure and lay out fixtures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.07 Select and use tools and equipment such as powder-actuated tools, hammer drills, levels and tape measures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.08 Install blocking Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.09 Assemble fixture support Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.01.10 Mount and secure fixture supports Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
SUB-TASK 16.02 <u>Learning Objective</u> Installs plumbing fixtures JP Sign-off ____	16.02.01 Identify all types of plumbing fixtures such as water closets, basins, bathtubs, showers and commercial kitchen sinks Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.02 Determine fixture materials and finishes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.03 Choose types of fasteners such as water closet bolts, lag bolts and clamps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.04 Apply barrier-free requirements and regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.05 Assemble fixtures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	16.02.06 Secure fixtures to manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.07 Connect fixtures to drainage and water distribution systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.08 Apply sealants such as caulking and silicone Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.09 Protect fixtures during installation and construction Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.02.10 Adjust fixture settings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
					16.02.11 Use tools and equipment such as basin and spud wrenches, and tub benders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

16 - E
(cont'd)

Learning Outcome
Installs plumbing fixtures
and appliances

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 16.03 <u>Learning Objective</u> Installs plumbing appliances JP Sign-off _____	16.03.01 Identify all types of residential plumbing appliances such as dishwashers, ice makers and clothes washers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.02 Identify all types of commercial plumbing appliances such as dishwashers, garbage grinders, ice makers and potato peelers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.03 Identify all types of institutional plumbing appliances such as sterilizers and hospital cart washers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.04 Identify appliance materials and finishes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.05 Select types of fasteners such as screws, bolts and anchors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	16.03.06 Assemble appliances Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.07 Secure appliances to manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.08 Connect appliances to drainage and water distribution systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.09 Apply sealants such as caulking and silicone Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.10 Protect appliances during installation and construction Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	
	16.03.11 Adjust appliance settings Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.12 Use tools and equipment such as spud wrenches and tube benders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	16.03.13 Coordinate the connection of power to electrical components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

17 - E
5 questions
on the IP exam

Learning Outcome
Installs water
treatment systems

Journeyperson
Sign-off
Task 17

Complete ☐

Incomplete ☐

Task 17
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 17.01 <u>Learning Objective</u> Sizes water treatment equipment JP Sign-off ____	17.01.01 Identify all types of water treatment equipment such as water softeners, water filters, UV sterilizers, reverse osmosis systems (RO) and de-ionizers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.02 Test composition of subject water such as hardness, pH level and turbidity Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.03 Identify contaminants Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.04 Determine function of water treatment equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.05 Formulate service/regeneration interval of equipment (time and volume) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	17.01.06 Calculate amount of treated water required between regeneration cycles Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.07 Test incoming water quality for conditions such as hardness, pH level and turbidity Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.01.08 Select equipment based on incoming water quality Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 17.02 <u>Learning Objective</u> Installs water treatment equipment JP Sign-off ____	17.02.01 Identify and select types of water treatment equipment such as water softeners, water filters, UV sterilizers, reverse osmosis systems (RO) and de-ionizers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.02 Follow manufacturers' specifications and installation instructions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.03 Determine cycles of water treatment equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.04 Determine water quality and testing requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.05 Assemble equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	17.02.06 Position, mount and secure equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.07 Program equipment for regeneration frequency Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	17.02.08 Terminate equipment drain Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

Plumber

BLOCK F
12% - 15 Questions on the IP exam

Learning Category
HYDRONIC HEATING AND COOLING SYSTEMS

18 - F
5 questions on the IP exam

Learning Outcome
Installs hydronic heating and cooling piping systems

Journey person
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

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 18.01 <u>Learning Objective</u> Installs piping for hydronic systems JP Sign-off ____	18.01.01 Interpret and apply engineering specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.02 Identify high and low pressure hydronic systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.03 Assemble piping arrangements such as reverse-return, direct-return and series loop Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.04 Select and use installation tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.05 Select and use lubricants and sealants Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	18.01.06 Lay out pipe route and elevations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.07 Install drains and vents Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.01.08 Lay out and secure piping for in-floor heating Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 18.02 <u>Learning Objective</u> Installs circulating pumps JP Sign-off ____	18.02.01 Identify all types of circulating pumps Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.02 Identify flanges and unions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.03 Determine pump size and position Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.04 Interpret and apply engineering specifications such as voltage, speed and rotation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.05 Measure down-stream and upstream pressures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	18.02.06 Build support system such as hangers, bases and stands Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.07 Install Y-strainer and sidestream filters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.08 Install check valve Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.09 Install isolation valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	18.02.10 Install loops to prevent thermal shock and deadhead Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

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

Learning Outcome
**Installs hydronic heating
and cooling piping
systems**

**Task 18
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<p>SUB-TASK 18.03</p> <p><u>Learning Objective</u> Installs hydronic system components</p> <p>JP Sign-off _____</p>	<p>18.03.01 Identify hydronic systems components such as air scoops, flow switches, gauges, heat exchanger, pot feeders, expansion tanks and low-water cutoffs</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.03.02 Select all types of valves such as makeup water, 3-way, isolation and zone</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.03.03 Determine component operation such as operating in direction of flow, regulating pressure and maintaining water quality</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.03.04 Determine system media such as water, glycol and additives</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.03.05 Locate components for proper operation</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>18.03.06 Use guides and expansion joints such as bellows, flex connectors and piston joints</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>				
<p>SUB-TASK 18.04</p> <p><u>Learning Objective</u> Installs piping and components for low pressure steam systems</p> <p>JP Sign-off _____</p>	<p>18.04.01 Identify all types of boilers</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.02 Select low pressure steam system components such as low water cut offs, condensate return pumps and steam traps</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.03 Determine operation of steam traps</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.04 Apply basic codes for boiler safety controls</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.05 Recognize dangers of steam and condensate</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>
	<p>18.04.06 Select and install steam trap for application</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.07 Use expansion joints such as bellows, piston and loop</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.08 Locate drip legs</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	<p>18.04.09 Install components such as traps, strainers and valves</p> <p>Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____</p>	

19 - F
5 questions on the IP exam

Learning Outcome
Installs hydronic heating and cooling generating 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

<p>SUB-TASK 19.01</p> <p><u>Learning Objective</u> Installs hydronic heating generating systems</p> <p>JP Sign-off _____</p>	<p>19.01.01 Identify all types of boilers such as low mass, high mass, electric and gas</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.02 Apply applicable codes and jurisdictional regulations</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.03 Determine and select heat pumps</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.04 Calculate required clearances for venting and access</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.05 Calculate British Thermal Units (BTUs)</p> <p>Rating ____ Complete Proof ____ Use ____</p>
	<p>19.01.06 Determine fuel source</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.07 Lay out hydronic heating generating systems</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.08 Place equipment on support pads</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.09 Mount equipment on hangers</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.01.10 Connect piping and flue piping</p> <p>Rating ____ Complete Proof ____ Use ____</p>
	<p>SUB-TASK 19.02</p> <p><u>Learning Objective</u> Installs hydronic cooling generating systems</p> <p>JP Sign-off _____</p>	<p>19.02.01 Identify all hydronic cooling generating equipment such as chillers, fluid coolers, cooling towers and heat pumps</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.02 Apply applicable codes and jurisdictional regulations</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.03 Calculate required clearances for access</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.04 Determine fuel sources</p> <p>Rating ____ Complete Proof ____ Use ____</p>
	<p>19.02.05 Lay out hydronic cooling generating systems</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.06 Place equipment on support pads</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.07 Mount heat pumps on hangers</p> <p>Rating ____ Complete Proof ____ Use ____</p>	<p>19.02.08 Connect piping</p> <p>Rating ____ Complete Proof ____ Use ____</p>	

20 - F
5 questions on the IP exam

Learning Outcome
Installs hydronic system controls and transfer units

Journeyperson
Sign-off
Task 20

Complete ☐
Incomplete ☐

Task 20
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 20.01 <u>Learning Objective</u> Installs hydronic heating generating systems JP Sign-off _____	20.01.01 Identify all hydronic system controls such as thermostats, supply sensors, pump sensors and outdoor temperature sensors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.02 Compute temperature settings such as boiler, slab, and supply and return Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.03 Calculate heating curves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.04 Locate system controls Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.05 Locate and install system sensors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	20.01.06 Set system priorities Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.01.07 Set pump speeds Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 20.02 <u>Learning Objective</u> Installs hydronic transfer units JP Sign-off _____	20.02.01 Identify all types of hydronic transfer units such as radiant panels, heat exchangers, force flow units, unit heaters, in-floor heating and perimeter radiation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.02.02 Determine specified locations for transfer units Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.02.03 Calculate heat loss to determine heating requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.02.04 Place transfer units on support pads Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	20.02.05 Mount transfer units on brackets or hangers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	20.02.06 Connect transfer units to piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

Plumber

BLOCK G
8% - 10 Questions on the IP exam

Learning Category
SPECIALIZED SYSTEMS

21 - G
2 questions on the IP exam

Learning Outcome
Installs piping and equipment for fuel systems

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

SUB-TASK 21.01	21.01.01 Recognize hazards of natural gas	21.01.02 Recognize characteristics of natural gas	21.01.03 Apply jurisdictional regulations	21.01.04 Follow sizing requirements for pipe	21.01.05 Select types of piping materials such as steel, plastic and copper
<u>Learning Objective</u> Installs piping for natural gas systems	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 ____
	JP Sign-off ____				
	21.01.06 Follow pressure testing requirements	21.01.07 Determine gas service and meter location	21.01.08 Select and use tools and equipment such as power vises and pipe wrenches	21.01.09 Identify leaks in piping	21.01.10 Compensate for movement of piping and systems with components such as swing joints and flex-connectors
	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 ____
	21.01.11 Identify location of dirt and drip pockets	21.01.12 Install corrosion protection	21.01.13 Tag and label pipe according to codes and regulations		
	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**21 - G
(cont'd)**

Learning Outcome
**Installs piping and
equipment for fuel
systems**

**Task 21
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<div>SUB-TASK</div> <div>21.02</div> <div><u>Learning Objective</u></div> <div>Installs piping for liquefied petroleum gas (LPG) systems</div> <div>JP Sign-off _____</div>	<div>21.02.01</div> <div>Identify all types of LPG such as propane and butane</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.02</div> <div>Demonstrate an understanding of characteristics of LPG</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.03</div> <div>Recognize hazards of LPG</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.04</div> <div>Apply jurisdictional regulations</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.05</div> <div>Follow sizing requirements for pipe</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	
	<div>21.02.06</div> <div>Select all types of piping materials such as steel, plastic and copper</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.07</div> <div>Follow pressure testing requirements</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.08</div> <div>Determine gas service and meter location</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.09</div> <div>Select and use tools and equipment such as power vices and pipe wrenches</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.10</div> <div>Coordinate with other underground services or utilities</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	
	<div>21.02.11</div> <div>Identify leaks in piping</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.12</div> <div>Connect pipe to the tank</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.13</div> <div>Compensate for movement of piping and systems with components such as swing joints and flex-connectors</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.14</div> <div>Identify location of dirt and drip pockets</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	<div>21.02.15</div> <div>Install corrosion protection</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>	
	<div>21.02.16</div> <div>Tag and label pipe according to codes and regulations</div> <div>Rating _____ Complete</div> <div>Proof _____ <input type="checkbox"/></div> <div>Use _____</div>					

21 - G
(cont'd)

Learning Outcome
Installs piping and
equipment for fuel
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

SUB-TASK 21.03 <u>Learning Objective</u> Installs piping for petroleum systems JP Sign-off _____	21.03.01 Demonstrate an understanding of characteristics of various petroleum products such as fuel oil diesel and kerosene Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.02 Recognize hazards of petroleum products Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.03 Apply jurisdictional regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.04 Follow sizing requirements for pipe Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.05 Select all types of piping materials such as steel, plastic and copper Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	21.03.06 Follow pressure testing requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.07 Select tools and equipment such as power vices and pipe wrenches Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.08 Coordinate with other underground services or utilities Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.09 Identify leaks in piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.10 Connect pipe to the tank Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	21.03.11 Compensate for move-ment of piping and systems with components such as swing joints and flex-connectors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.12 Identify location of dirt and drip pockets Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.03.13 Tag and label pipe according to codes and regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		

**21 - G
(cont'd)**

Learning Outcome
**Installs piping and
equipment for fuel
systems**

**Task 21
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 21.04 <u>Learning Objective</u> Installs equipment for fuel systems JP Sign-off _____	21.04.01 Identify all types of fuel system equipment installed by plumbers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.02 Determine installation requirements and procedures for fuel system equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.03 Determine equipment limitations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.04 Select types of components such as natural gas regulators, tanks and cylinders Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.05 Calculate equipment clearance and venting requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	21.04.06 Apply applicable codes and regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.07 Select tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.08 Select equipment for fuel types Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.09 Layout equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	21.04.10 Connect equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	21.04.11 Install equipment components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				

22 - G
2 questions on the IP exam

Learning Outcome
Installs medical gas systems

Journeyperson
Sign-off
Task 22

Complete ☐

Incomplete ☐

Task 22
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 22.01 <u>Learning Objective</u> Installs piping for medical gas systems JP Sign-off _____	22.01.01 Apply applicable codes and regulations	22.01.02 Identify medical gas pipe and characteristics and requirements such as grade of pipe, and degreasing and capping requirements	22.01.03 Identify and meet certification requirements to join medical gas piping	22.01.04 Determine purging requirements and procedures	22.01.05 Demonstrate an understanding of brazing material requirements and characteristics
	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 ____
	22.01.06 Describe dangers associated with cross-connection Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.01.07 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.01.08 Coordinate rough-in requirements with third-parties Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.01.09 Tag and label pipes according to regulations and standards Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.01.10 Purge and braze piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	22.01.11 Pressure test piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.01.12 Test for cross-connection Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

**22 - G
(cont'd)**

Learning Outcome
**Installs medical gas
systems**

Journeyperson
Sign-off
Task 22

Complete ☐

Incomplete ☐

**Task 22
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 22.02 <u>Learning Objective</u> Installs equipment for medical gas systems JP Sign-off _____	22.02.01 Apply applicable codes and regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.02 Meet jurisdictional certification requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.03 Identify types of equipment such as vacuum pumps, air compressors, bulk systems and reserve systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.04 Identify characteristics and requirements of medical gas equipment such as zone valves, alarms and manifolds Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.05 Select accessories such as pressure reducing valves, pressure relief valves and dew- point sensors Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	22.02.06 Apply diameter index safety system (DISS) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.07 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.08 Connect pipe to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.09 Pressure test equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	22.02.10 Locate alarm points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

23 - G
1 question on the IP exam
Learning Outcome
Installs irrigation systems

Journeyperson
 Sign-off
 Task 23

Complete ☐

Incomplete ☐

Task 23
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 23.01 <u>Learning Objective</u> Installs piping for irrigation systems JP Sign-off ____	23.01.01 Select types of piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.01.02 Demonstrate an understanding of hazards associated with cross-connection/backflow preventers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.01.03 Identify types of irrigation systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.01.04 Determine trenching requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.01.05 Select and use installation tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	23.01.06 Perform service tests Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____				
SUB-TASK 23.02 <u>Learning Objective</u> Installs equipment for irrigation systems JP Sign-off ____	23.02.01 Identify types of irrigation equipment such as sprinkler heads, valve boxes, timers, pumps and solenoid valves Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.02.02 Assemble layout of irrigation systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.02.03 Identify and select residential and commercial irrigation systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.02.04 Factor in winterization considerations such as slope, drainage points and purge points Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.02.05 Select and use installation tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	23.02.06 Select sprinkler heads according to application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	23.02.07 Adjust irrigation equipment such as sprinkler patterns and timers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

24 - G
2 questions on the IP
exam

Learning Outcome
Installs compressed air
systems

Journeyperson
Sign-off
Task 24

Complete ☐

Incomplete ☐

Task 24
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 24.01 <u>Learning Objective</u> Installs compressed air systems JP Sign-off _____	24.01.01 Identify piping materials such as steel, plastic and copper Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.01.02 Apply applicable codes and regulations regarding pressurized piping and vessels Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.01.03 Determine piping arrangements such as straight-line supply and loop Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.01.04 Recognize hazards of compressed air Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.01.05 Select tools and equipment such as pipe wrenches and vices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	24.01.06 Connect pipe to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.01.07 Calculate slope of pipe to drain moisture Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			
SUB-TASK 24.02 <u>Learning Objective</u> Installs equipment for compressed air systems JP Sign-off _____	24.02.01 Apply applicable codes and regulations Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.02 Select components of air systems such as air driers, flex-connectors, auto drains, pressure regulators and filters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.03 Demonstrate an understanding of compressor operation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.04 Identify types of compressors such as reciprocating and scroll Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.05 Identify safety devices such as relief valves and guards Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	24.02.06 Recognize hazards of compressed air Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.07 Select tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.08 Install vibration isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	24.02.09 Connect equipment to piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

25 - G
1 question on the IP exam
Learning Outcome
Installs fire protection systems

Journeyperson
 Sign-off
 Task 25

Complete ☐

Incomplete ☐

Task 25
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 25.01 <u>Learning Objective</u> Installs piping for standpipe systems (NOT COMMON CORE) JP Sign-off _____	25.01.01 Apply applicable codes such as the National Fire Protection Association (NFPA) Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.02 Select piping materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.03 Calculate rough-in requirements for piping to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.04 Recognize limitations of materials Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.05 Select wet and dry systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	25.01.06 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.07 Calculate pressures and number of heads Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.01.08 Size pipe according to application Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 25.02 <u>Learning Objective</u> Installs equipment for standpipe systems (NOT COMMON CORE) JP Sign-off _____	25.02.01 Identify types of piping materials such as steel, plastic and copper Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.02.02 Select pumps and their requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.02.03 Select cross-connection/backflow preventers Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.02.04 Identify components such as gauges, pressure switches, supervisory valves and flow alarm switches Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.02.05 Select and use tools and equipment such as roll groovers, power hole saws and hydraulic cutters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	25.02.06 Select and install fire extinguishers, hose cabinets and trim Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.02.07 Connect pipe to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____			

**25 - G
(cont'd)**

Learning Outcome
**Installs fire protection
systems**

**Task 25
Learning Needs**

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

SUB-TASK 25.03 <u>Learning Objective</u> Installs fire protection systems for single family dwellings JP Sign-off _____	25.03.01 Apply applicable codes and regulations such as NFPA and local building codes Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.02 Select piping materials such as plastic and copper Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.03 Demonstrate an understanding of flow-through systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.04 Select components such as joints and tees Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.05 Determine types of sprinklers such as concealed, sidewall, pendant and upright Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	25.03.06 Select sprinklers according to location Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.07 Fit fire protection system to existing plumbing system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.08 Modify pipes to accommodate water requirements Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	25.03.09 Select and use tools and equipment such as head wrenches and manufacturer-specific tools Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	

26 - G
2 questions on the IP
exam

Learning Outcome
Installs process piping
systems

Journeyperson
Sign-off
Task 26

Complete ☐
Incomplete ☐

Task 26
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 26.01 <u>Learning Objective</u> Installs piping for process piping systems JP Sign-off ____	26.01.01 Identify piping materials such copper, stainless steel, steel and plastic Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.02 Demonstrate joining methods such as soldering, brazing and compression Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.03 Calculate rough-in requirements for piping to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.04 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.05 Size piping Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	26.01.06 Measure pipe lengths Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.07 Install piping components such as fittings, valves and expansion joints Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.01.08 Install dielectric isolation Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 26.02 <u>Learning Objective</u> Installs process piping system equipment JP Sign-off ____	26.02.01 Identify process piping system equipment such as boilers, heat exchangers, pumps and reverse-osmosis systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.02 Identify all types of process piping components such as pressure reducing valves, pressure relief valves and filters Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.03 Determine minimum and maximum allowable pressures Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.04 Interpret and follow manufacturers' installation instructions Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.05 Determine requirements for isolation of equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	26.02.06 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.07 Position and secure the equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.08 Make piping connections to equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.09 Position isolation valves for equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	26.02.10 Select dielectric protection for use on tanks and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

Knowledge, Skills and Abilities - Competencies

Plumber

BLOCK H

10% - 12 Questions on the IP exam

Learning Category
MAINTENANCE AND REPAIRS

27 - H

5 questions on the IP exam

Learning Outcome
Maintains systems and components

Journeyperson
Sign-off
Task 27

Complete ☐

Incomplete ☐

Task 27
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

SUB-TASK 27.01 <u>Learning Objective</u> Performs scheduled maintenance JP Sign-off ____	27.01.01 Demonstrate an understanding of system design Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.02 Cycle system operational sequence Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.03 Recognize system components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.04 Develop preventative maintenance programs Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.05 Follow manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	27.01.06 Select and use tools and equipment Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.07 Perform sensory inspections Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.08 Recognize system operation problems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.09 Establish and follow maintenance schedules Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.10 Disassemble, clean, lubricate and reassemble components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
	27.01.11 Record maintenance data and maintain service records Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.12 Test cross-connection devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.01.13 Maintain systems such as plumbing, appliances, pumps and fuel systems Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____		
SUB-TASK 27.02 <u>Learning Objective</u> Monitors system performance JP Sign-off ____	27.02.01 Demonstrate an understanding of system design Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.02.02 Cycle and observe system operational sequence Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.02.03 Analyze system components Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.02.04 Follow manufacturers' specifications Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	27.02.05 Use monitoring equipment such as refractometers, multimeters, and test strips and kits Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____

27 - H
(cont'd)

Learning Outcome
Maintains systems and
components

Task 27
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

27.02.06 Evaluate past system performance Rating ____ Complete Proof ____  Use ____	27.02.07 Select and use tools and equipment Rating ____ Complete Proof ____  Use ____	27.02.08 Perform sensory inspections Rating ____ Complete Proof ____  Use ____	27.02.09 Recognize system operation problems Rating ____ Complete Proof ____  Use ____	27.02.10 Test system media for properties such as water quality, acidity and glycol content Rating ____ Complete Proof ____  Use ____
27.02.11 Read instruments and gauges Rating ____ Complete Proof ____  Use ____	27.02.12 Interpret trend logs Rating ____ Complete Proof ____  Use ____	27.02.13 Make adjustment to systems and media Rating ____ Complete Proof ____  Use ____	27.02.14 Record system performance data Rating ____ Complete Proof ____  Use ____	

28 - H
7 questions on the IP exam

Learning Outcome
Troubleshoots systems and components

Journeyperson
Sign-off
Task 28

Complete ☐

Incomplete ☐

Task 28
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

<div>SUB-TASK 28.01</div> <div>Learning Objective</div> <div>Diagnoses plumbing-related systems and components</div> <div>JP Sign-off _____</div>	<div>28.01.01</div> <div>Interpret system design</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.02</div> <div>Analyze system operational sequence</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.03</div> <div>Identify system components</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.04</div> <div>Follow manufacturers' specifications</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.05</div> <div>Select and use diagnostic tools and equipment such as multimeters, differential pressure gauges, backflow testing kit and thermometers</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>28.01.06</div> <div>Perform sensory inspections such as visual, smell and touch</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.07</div> <div>Recognize system operation problems</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.08</div> <div>Test system media properties such as water quality, acidity and glycol</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.09</div> <div>Interpret instruments and gauges</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.10</div> <div>Record and interpret operational data</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>28.01.11</div> <div>Problem-solve</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.01.12</div> <div>Understand client description of problems and system history</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>			

<div>SUB-TASK 28.02</div> <div>Learning Objective</div> <div>Repairs plumbing-related systems and components</div> <div>JP Sign-off _____</div>	<div>28.02.01</div> <div>Determine system design, operational sequence and components</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.02</div> <div>Demonstrate an understanding of plumbing, medical gas, fuel and pressure systems</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.03</div> <div>Inspect system components such as fixtures, appliances, piping, pumps and equipment</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.04</div> <div>Apply manufacturers' specifications</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.05</div> <div>Demonstrate an understanding of historic piping practices, piping materials, equipment and systems</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>
	<div>28.02.06</div> <div>Determine types of pipes and equipment</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.07</div> <div>Select and use repair tools and equipment</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.08</div> <div>Perform sensory inspections such as visual, smell and touch</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.09</div> <div>Read instruments and gauges</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>	<div>28.02.10</div> <div>Interpret operational data</div> <div>Rating _____ Complete</div> <div>Proof _____ <div></div></div> <div>Use _____</div>

28 - H
(cont'd)

Learning Outcome
Troubleshoots systems
and components

Task 28
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

28.02.11 Demonstrate an understanding of client description of problems and system history Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	28.02.12 Recognize worn, damaged or defective devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	28.02.13 Repair, service and rebuild devices Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____	28.02.14 Test system Rating ____ Complete Proof ____ <input type="checkbox"/> Use ____
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APPENDIX A

PLUMBER

NATIONAL OCCUPATIONAL ANALYSIS

GLOSSARY

Appliance	Piece of equipment which may require connection to a plumbing system
Backflow	Flowing back or reversal of the normal direction of the flow
Backflow preventer	Device that prevents backflow
Backwater valve	Check valve designed for use in a gravity drainage system
Branch (drainage)	Soil-or-waste pipe connected at its upstream end to the junction of two or more soil-or-waste pipes or to a soil-or-waste stack, and connected at its downstream end to another branch, a sump, a soil-or-waste stack or a building drain
Branch (potable water)	Any pipe connecting to a potable water main and ending at another branch, riser or fixture supply pipe
Building drain	Main trunk that other parts of the system connect to
Building sewer	Pipe that is connected to a building drain 1 m outside a wall of a building and that leads to a public sewer or private sewage disposal system
Check valve	Valve that permits flow in only one direction
Cleanout	Access provided in drainage and venting systems to provide for cleaning and inspection services
Cross-connection	A connection between a potable water source to a non-potable water source

Developed length	Length along the centre line of the pipe and fitting
Diameter index safety system (DISS)	Index system used for medical gases which defines the properties of the access points (diameter and configuration) allowing only specific connection devices to connect to corresponding gas access point
Dielectric protection	A method isolating dissimilar metals to prevent electrolysis (ion transfer)
Dirt/drip pocket	Piping configuration to allow collection of direct or condensation
Drainage system	Assembly of pipes, fittings, fixtures, traps and appurtenances that is used to convey sewage, clear-water waste or storm water to a public sewer or a private sewage disposal system, but does not include subsoil drainage pipes
Drive point (screened)	Tapered screened point at the end of a pipe used in a pressure system that is driven into the ground and placed at the bottom of a shallow well which acts as a casing and screens sand
Embedded components	Components of a plumbing system that are encased in concrete or other materials
Expansion tank	Device used to accept expansion of water in a closed system
Fire separation/ fire stopping	Construction assembly that acts as a barrier against the spread of fire and smoke
Fixture	Receptacle, appliance, apparatus or other device that discharges sewage or clear-water waste, includes a floor drain
Fixture unit – drainage systems	Unit of measure based on the rate of discharge, time of operation and frequency of use of a fixture that expresses the hydraulic load that is imposed by that fixture on the drainage system
Fixture unit – water distribution systems	Unit of measure based on the rate of supply, time of operation and frequency of use of a fixture or outlet that expresses the hydraulic load that is imposed by that fixture or outlet on the water supply system

Flashing	Component made of rubber, sheet metal or lead used to seal around exterior pipe penetration
Flex-connector	Device used to isolate vibration and allow for expansion and movement of appliances, equipment and piping
Head pressure	Pressure developed by an increase in elevation
Heat tracing	An electrical, hydronic or steam system that prevents the freezing of piping
Home run	The run of pipe from the manifold to the water meter
Interceptor	Receptacle that is installed to prevent oil, grease, sand or other materials from passing into a drainage system
Offset	A piping that connects the ends of two pipes that are parallel or perpendicular
Pitless adaptor	Fitting that allows the connection and removal of a pump without the use of tools or entering a confined space
Plumbing system	Drainage system, a venting system and a water system or parts thereof
Potable	Safe for human consumption
Press fit	A fastening between two parts which is achieved by friction after the parts are pushed together; also called interference fit
Private sewage disposal system	Privately owned plant for the treatment and disposal of sewage (such as a septic tank with an absorption field)
Private water supply system	Assembly of pipes, fittings, valves, equipment and appurtenances that supplies water from a private source to a water distribution system
Purge	To pass inert gas inside of pipe to prevent oxidation during brazing operations

Riser	Water distribution pipe that extends through at least one full storey
Roof drain	Fitting or device that is installed in the roof to permit storm water to discharge into a leader
Rough-in	Placement of pipes in order to allow for final installation of fixtures and equipment
Sanitary sewer	Sewer that conducts sewage
Sensory inspection	Inspection using one or more of the following: sight, taste, touch, smell, auditory
Sewage	Any liquid water other than clear-water waste or storm water
Shave	Decrease parts of a piece which must be fitted
Sleeve	A component used to create a penetration through walls, floors and ceilings prior to the installation of piping
Soil-or-waste pipe	Pipe in a sanitary drainage system
Sound, to	A method of detecting cracks in cast iron pipe and fitting
Storm sewer	Sewer that conveys storm water
Swing joint	Piping arrangement to allow for movement of appliance without putting strain on piping
Tempered water valve	A valve or a device that mixes hot and cold water to a predetermined temperatures
Thrust blocks	A formed concrete block used to prevent movement of a fitting at a change of direction in a buried piping system
Torque arrestor	Device installed on a pipe in a well casing which prevents the pipe from spinning
Trap	Fitting or device that is designed to hold a liquid seal that will prevent the passage of gas but will not materially affect the flow of a liquid

Trap arm	That portion of a fixture drain between the trap weir and the vent pipe fitting
Tube	Measured by inside diameter
Tubing	Measured by OD and wall thickness
Vent pipe	Pipe that is part of a venting system
Venting system	Assembly of pipes and fittings that connects a drainage system with outside air for circulation of air and the protection of trap seals in the drainage system
Water distribution system	Assembly of pipes, fittings, valves and appurtenances that conveys water from the water service pipe or private water supply system to water supply outlets, fixtures, appliances and devices
Water heater	Device for heating water for plumbing services
Water service pipe	Pipe that conveys water from a public water main or private water source to the inside of a building
Water system	Private water supply system, a water service pipe, a water distribution system or parts thereof
Wet vent	Soil-or-waste pipe that also serves as a vent pipe

Plumber National Occupational Analysis ACRONYMS

ABS	Acrylonitrile-Butadiene-Styrene	OD	Outside Diameter
ACR	Air Conditioning and Refrigeration	PEWP	Power Elevated Work Platform
BTU	British Thermal Unit	PEX	Crosslinked Polyethylene
CRN	Canadian Registration Number	PPE	Personal Protective Equipment
DISS	Diameter Index Safety System	PVC	Polyvinyl Chloride
DWV	Drains, Waste and Vents	RO	Reverse Osmosis
GP	General Purpose	TDG	Transport of Dangerous Good
GPS	Global Positioning System	TSP	Trap Seal Primers
Hp	Horsepower	V	Volt
ID	Inside Diameter	WHMIS	Workplace Hazardous Materials Information System
LPG	Liquefied Petroleum Gas	WOG	Water-oil-gas
MSDS	Material Safety Data Sheet		
NFPA	National Fire Protection Association		

APPENDIX B

ESSENTIAL SKILL	Required Essential Skills Tasks for Trades
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 logs sheets

ESSENTIAL SKILL	Required Essential Skills Tasks for Trades
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 trades people
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	Required Essential Skills Tasks for Trades
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 data bases ➤ 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 on or in a group on complex work related matters
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

ESSENTIAL SKILL	Required Essential Skills Tasks for Trades
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
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

