Trade essentials

More skills … more opportunities

Professional Skills Record

Plumber

NOC 7251

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Canada

Prince Edward Island CANADA

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

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Gerard Lund (Carpenter)
Leo MacDonald (Carpenter)
Ryan Rogerson (Carpenter)
Darren Richards (Construction Electrician)
Mark Seaman (Construction Electrician)
Ken Zakem (Cook)
Rod Lukeman (Cook)

Barry Strongman (Industrial Electrician)
Gregg Francis (Industrial Electrician)
Jake Shaw (Machinist)
Sue LeFort (Machinist)
John Hebert (Metal Fabricator / Welder)
Joe Johnson (Metal Fabricator)
Jim Arsenault (Metal Fabricator)
Kent Mitchell (Oil Burner Mechanic / Steamfitter-Pipefitter)
Rod Arsenault (Oil Burner Mechanic / Refrigeration & Air Conditioning Mechanic)
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Journeyperson's Handbook

Trade essentials

More skills … more opportunities

TABLE OF CONTENTS

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.

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

Learning Category
OCCUPATIONAL SKILLS

Task 1 – A
3 questions on the IP exam

Learning Outcome
Uses and maintains tools and equipment

Journeyperson Sign-off Task 1

Complete ☐

Incomplete ☐

⇩ Knowledge, Skills and Abilities - Competencies

SUB-TASK 1.01 Learning Objective **Uses hand tools** **JP Sign-off ____**	**1.01.01** Identify boring tools **Rating ____ Complete** **Proof ____** ☐ **Use ____**	**1.01.02** Identify hand cutting tools **Rating ____ Complete** **Proof ____** ☐ **Use ____**

⇦ 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
Learning Objectives
to be completed
Comments

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

You might

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

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

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

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

Professional Skills Record

Trade essentials

More skills … more opportunities

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

Prince Edward Island

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

TABLE OF CONTENTS

Plumber Trade Information

Name: __ _____ Full Address: _____

Email Address: _____ __ _____

Phone: Home _____ Work _____ Cell _____

Technical Skills Journeyperson 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:

Signature: _____

Provincial/Territorial Apprenticeship Manager:

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 Learning Category/s Completed	Task/s Learning Outcome/s Completed	Academic Requirement	

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: - 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**	**Journeyperson with a Certificate of Qualification, Red Seal endorsement** and/or **Gold Seal tradesperson** who is an expert in their field - 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: - 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 journeyperson 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: - to meet task timelines - to the **highest level and quality required by industry without supervision**	**4**	**Experienced, skilled journeyperson with a Certificate of Qualification, Red Seal endorsement**
Can perform this task and series of sub-tasks: - to the level and quality required by industry **without assistance or supervision**	**3**	**Newly certified journeyperson with a Certificate of Qualification, Red Seal endorsement**
Can perform this task and series of sub-tasks: - to the required level and quality of performance **with direction, some assistance and supervision**	**2**	**Apprentice** working **under the direction** of a **journeyperson with a Certificate of Qualification, Red Seal endorsement**
Can perform this task and series of sub-tasks: - 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 **journeyperson with a Certificate of Qualification, Red Seal endorsement**

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

Type of Proof – Observation … Interview … Documentation

Observation

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

Interview

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

Documentation

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

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

Assessment Standard THREE

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

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

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

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

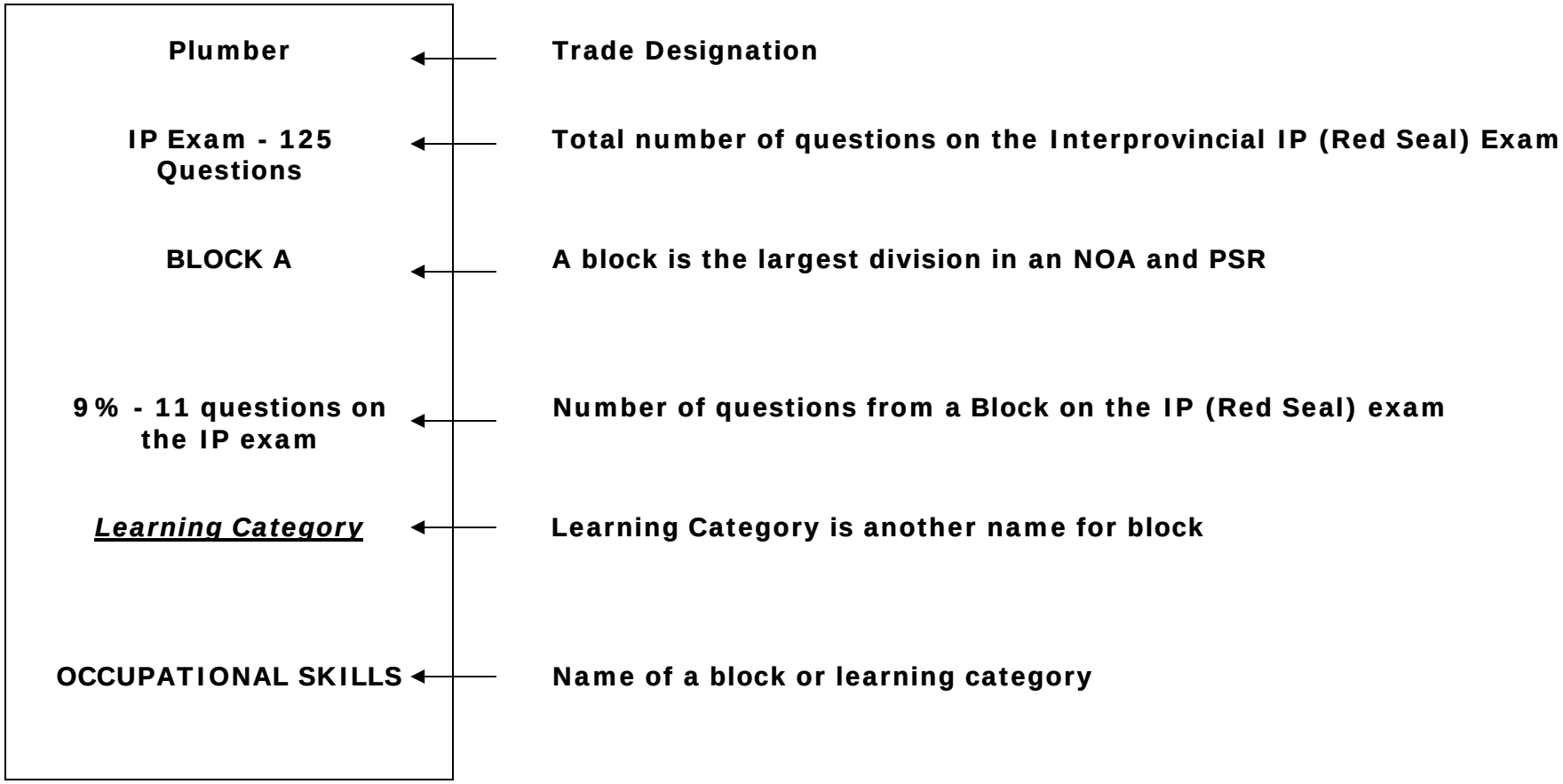
Completing this PSR can help you:

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

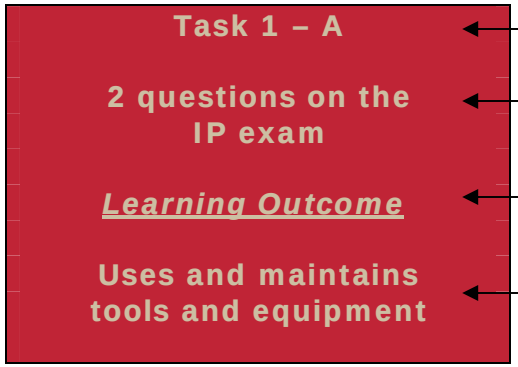
Professional Skills Record (PSR) Components

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

Information in the PSR includes:



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

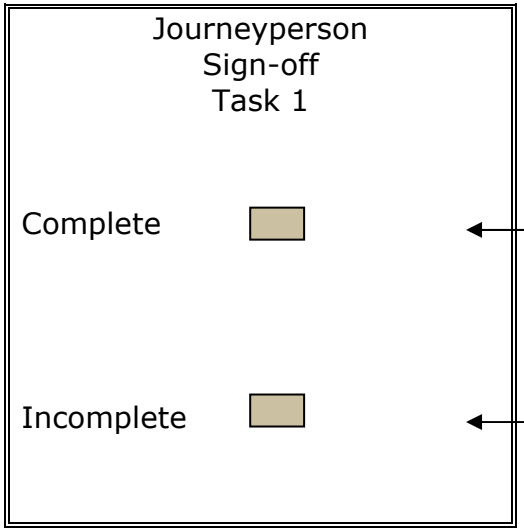


Task Number and Block/Category (letter number)

Number of questions on the IP Red Seal exam from the task

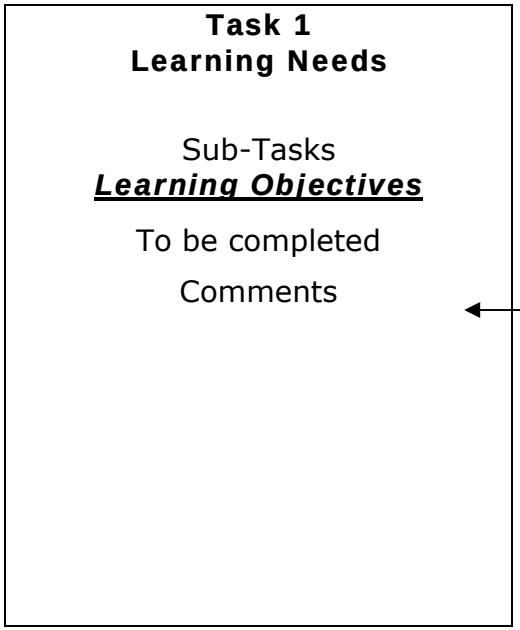
Learning Outcome is another name for a Task

Task or learning outcome description



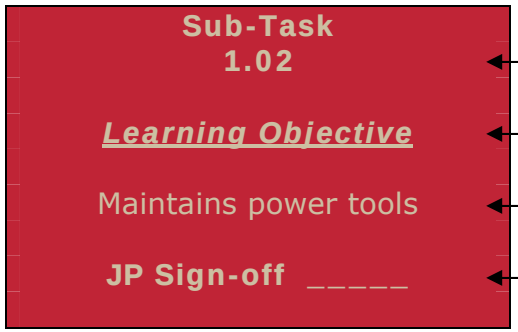
Journeyperson's initials verify that an apprentice can perform the task to industry standards.

Journeyperson's initials "incomplete" when the apprentice requires more work because the task is not being performed to industry standards.



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 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

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 Learning Objective **Maintains power tools** **JP Sign-off** _____	**1.01.01** Identify types of hand tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.01.02** Clean and lubricate hand tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.01.03** Sharpen hand tools such as chisels and knives **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.01.04** Organize and store hand tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.01.05** Recognize worn, damaged or defective hand tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

SUB-TASK 1.02 Learning Objective **Uses power tools** **JP Sign-off** _____	**1.02.01** Identify types of power tools such as electric, pneumatic and hydraulic **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.02.02** Clean and lubricate power tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.02.03** Arrange to sharpen power tool accessories such as drill bits and reamers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.02.04** Organize and store power tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.02.05** Recognize worn, damaged or defective power tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.02.06 Replace power tool components such as jaws on a power vice, saw blades and cutter wheels **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Maintains powder-actuated tools** **JP Sign-off** _____	**1.03.01** Identify types of powder-actuated tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.03.02** Acquire training and certification requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.03.03** Clean and lubricate powder-actuated tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.03.04** Store shots **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.03.05** Organize and store powder-actuated tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.03.06 Recognize worn, damaged or defective powder-actuated tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				

SUB-TASK 1.04 Learning Objective **Maintains cutting and welding equipment** **JP Sign-off** _____	**1.04.01** Identify types of components of cutting and welding equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.02** Follow Transport of Dangerous Goods (TDG) regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.03** Use torch tip cleaners **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.04** Set gauges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.05** Adjust gauges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.04.06 Install gauges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.07** Install spark arrestors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.08** Use bottle storage procedures such as chained to stand, screwed on caps and stored in carts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.09** Organize and store cutting and welding equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.04.10** Recognize worn, damaged or defective cutting and welding equipment **Rating** ____ **Complete** **Proof** ____ ☐ **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

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 1.05 Learning Objective **Uses ladders and work platforms** **JP Sign-off** _____	**1.05.01** Identify types of ladders **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.02** Determine types of work platforms such as scaffolds and power elevated work platforms (PEWPs) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.03** Apply training and regulations regarding operation of ladders and work platforms **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.04** Follow fall arrest equipment and requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.05** Follow operating procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.05.06 Calculate the ratio to determine limitations of ladders and work platforms **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.07** Secure ladders and work platforms **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.08** Check ladders and work platforms prior to and during use **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.09** Organize and store ladders and work platforms **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.05.10** Recognize worn, damaged or defective ladders and work platforms **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 1.06 Learning Objective **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** ____ ☐ **Use** ____	**1.06.02** Calculate limitations such as lifting weights and capacities **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.03** Include safety factors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.04** Determine appropriate knots **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.05** Meet requirements for hoisting and rigging certification **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.06.06 Meet requirements for crane and operator certification **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.07** Keep load steady using tag line **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.08** Use hand signals **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.09** Recognize and cut damaged slings prior to disposal **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.06.10** Organize and store rigging, hoisting and lifting equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

Task 1 - A (cont'd)

Learning Outcome
Demonstrates common trade practices

Task 1
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Knowledge, Skills and Abilities - Competencies

	1.06.11 Recognize worn, damaged or defective rigging, hoisting and lifting equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				
SUB-TASK 1.07 Learning Objective **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 **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.02** Implement types of safety equipment such as first aid kits, eye wash kits and fire extinguishers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.03** Follow PPE and safety equipment operating procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.04** Complete training requirements for PPE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.05** Determine and establish locations of PPE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	1.07.06 Acquire and follow workplace safety and health regulations and policies such as WHMIS and company safety policies **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.07** Select PPE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.08** Maintain PPE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.09** Store PPE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**1.07.10** Recognize worn, damaged or defective PE and safety equipment **Rating** ____ **Complete** **Proof** ____ ☐ **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
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1 - Complete task with assistance and constant supervision

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 2.01 Learning Objective **Uses documentation and reference material** **JP Sign-off** _____	**2.01.01** Apply all types of documentation such as plumbing code, and manufac-turers', engineering and architectural specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.02** Read all types of blueprints such as structural, architectural, mechanical and electrical **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.03** Interpret all types of field drawings such as isometric, orthographic and oblique **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.04** Examine shop drawings and specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.05** Interpret site-specific documents such as change orders, site instructions and revisions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.01.06 Convert metric and imperial measurements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.07** Determine scope of work in documentation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.08** Produce drawings such as isometrics, plan and elevation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.09** Scale drawings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.10** Interpret drawings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.01.11 Complete checklists and work orders **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.01.12** Produce as-built and sleeve drawings **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Communicates with others** **JP Sign-off** _____	**2.02.01** Demonstrate and understanding of and use trade terminology **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.02** Use communication equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.03** Deliver and interpret verbal and written communication **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.04** Apply hand signals **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.05** Communicate with tradespeople **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.02.06 Communicate with non-tradespeople such as owners, engineers and clients **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.07** Mentor apprentices **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.08** Ask and answer job-related questions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.02.09** Follow instructions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

SUB-TASK 2.03 Learning Objective **Organizes materials and supplies** **JP Sign-off** _____	**2.03.01** Determine job requirements and sequencing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.02** Demonstrate an understanding of material availability **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.03** Do material take-offs **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.04** Determine and select material **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.05** Coordinate material handling with other professionals and tradespeople **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.03.06 Schedule material delivery **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.07** Stack materials and supplies in order of use **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.03.08** Store, secure and lock up materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		

Task 2 - A (cont'd)

Learning Outcome
Organizes work

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
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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 Learning Objective **Organizes project tasks and procedures** **JP Sign-off** _____	**2.04.01** Determine and estimate assigned work **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.02** Coordinate work performed by other tradespeople **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.03** Organize labour requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.04** Determine tool and equipment requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.05** Work with other trades **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.04.06 Estimate time and labour requirements to complete tasks **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.07** Adapt to changing environmental conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.08** Identify sequence of tasks **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.04.09** Understand tasks and directions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	
SUB-TASK 2.05 Learning Objective **Maintains safe work environment** **Continued next page**	**2.05.01** Implement company safety policies and guidelines **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.02** Participate in tool box talks **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.03** Administer company safety briefs **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.04** Interpret WHMIS information such as labels and Material Safety Data Sheets (MSDS) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.05** Follow safety training and requirements such as fall protection and confined space entry **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	2.05.06 Complete and administer hot work permits and fire watch **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.07** Establish the location of safety equipment and materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.08** Identify and display emergency contacts such as hospital addresses, health issues and utilities **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.09** Establish emergency procedures such as muster points and evacuation procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.10** Reference safety regulations **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Maintains safe work environment** **JP Sign-off** _____	**2.05.11** Maintain good housekeeping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.12** Install temporary safety protection such as caution tape and signage **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.13** Recognize and correct unsafe conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.14** Recognize materials with possible asbestos content **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**2.05.15** Report potential hazards **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

Task 3 - A
5 questions on the IP exam

Learning Outcome
Performs routine trade activities

Journeyperson Sign-off Task 3

Complete ☐

Incomplete ☐

Task 3
Learning Needs

Sub-Tasks
Learning Objectives to be completed
Comments

Rating:
6 - Expert perform a task beyond expected level and quality of performance, lead and/or teach others
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Type of Proof: O - Observation I - Interview D - Documentation

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 3.01 Learning Objective **Installs piping support and hanger systems** **JP Sign-off** _____	**3.01.01** Classify types of supports and hangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.02** Determine piping material being supported **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.03** Select anchors, guides and slide plates **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.04** Calculate support and hanger spacing and size of rods **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.05** Select types of fasteners such as beam clamps, drop-in anchors, draw bolts and toggle bolts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.01.06 Determine interferences **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.07** Determine thickness of insulation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.08** Perform calculations such as elevations of hangers, length of rods and spacing of hangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.09** Fabricate supports and hangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.10** Attach supports and hangers to building structure **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.01.11 Reference support details **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.01.12** Select and use tools and equipment such as powder-actuated tools and rotary hammers **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs sleeves** **JP Sign-off** _____	**3.02.01** Determine requirements for sleeve installation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.02.02** Schedule timing for installing sleeves **Rating** ____ **Complete** **Proof** ____ ☐ **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** ____ ☐ **Use** ____	**3.02.04** Size sleeves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.02.05** Position and secure sleeves using fasteners **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.02.06 Fabricate sleeves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.02.07** Protect sleeve during concrete pour **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			

SUB-TASK 3.03 Learning Objective **Tests piping and plumbing systems** **JP Sign-off** _____	**3.03.01** Classify test procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.02** Implement testing safety **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.03** Calculate gauge assemblies and calibration **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.04** Isolate system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.05** Pressurize and depressurize system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.03.06 Determine type of test required such as water, air, nitrogen and smoke **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.07** Detect leaks, cracks or defects **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.08** Use test equipment such as plugs, balls and double-test plug **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.09** Secure surrounding test area with caution tape and barriers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.03.10** Perform hydrostatic testing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.03.11 Document testing in test reports **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				

Task 3 - A (cont'd)

Learning Outcome
Performs routine trade activities

Task 3
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 3.04 Learning Objective **Commissions systems** **JP Sign-off** _____	**3.04.01** Perform pre-commissioning checks and procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.02** Determine appropriate startup of pumps, mixing valves and controls **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.03** Estimate makeup water pressure **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.04** Interpret water quality inspection reports **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.05** Fill system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.04.06 Isolate system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.07** Clean, degrease and flush system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.08** Take water sample for testing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.09** Record information on spool sheets such as heat numbers, drawing number and material grade **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.10** Apply markings such as pipe ID, valve tagging and equipment labelling **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.04.11 Set sensors and controls **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.12** Mark drawings with as-built information **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.13** Complete commissioning checklist **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.14** Instruct others on system use and care **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.04.15** Provide operation and maintenance manuals to owners **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.04.16 Coordinate start-up with manufacturer **Rating** ____ **Complete** **Proof** ____ ☐ **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 3.05 Learning Objective **Performs lock-out and tag-out procedures** **JP Sign-off** _____	**3.05.01** Identify piping system being worked on **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.05.02** Determine components that require lock-out such as pumps, valves and electrical panels **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.05.03** Apply lock-out identification requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.05.04** Determine situations requiring lock-out such as equipment shutdowns, regular maintenance, start- ups and testing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.05.05** Lock out valves and equipment using chains, locks and tags **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.05.06 Fabricate and install isolating devices such as blind flanges and spades **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				

SUB-TASK 3.06 Learning Objective **Protects piping systems and equipment from damage** **JP Sign-off** _____	**3.06.01** Demonstrate an understanding of piping and plumbing equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.06.02** Locate frost protection such as electric tracer, frost boxes and circulating pumps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.06.03** Apply ultraviolet protection **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.06.04** Apply corrosion protection such as coatings and tape **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.06.05** Determine physical damage protection such as protective plates, smash plates, grommets and underground sleeving **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.06.06 Use protective measures such as insulating, water treatment and dielectric protection **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.06.07** Install vibration protection components such as rubber pucks, spring isolators and flex expansion couplings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			

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 Learning Objective **Coordinates excavation and backfilling of trenches** **JP Sign-off** _____	**3.07.01** Determine soil conditions and shoring requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.07.02** Calculate degree of excavation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.07.03** Recognize responsibilities of excavator contractor **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.07.04** Schedule required heave equipment for excavation and backfilling **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.07.05** Determine backfilling conditions according to specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.07.06 Determine finish grade **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.07.07** Coordinate the locating of underground services such as power lines, water mains, sewer lines and gas lines **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			

SUB-TASK 3.08 Learning Objective **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** ____ ☐ **Use** ____	**3.08.02** Determine fire rating requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.08.03** Calculate required gaps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.08.04** Follow fire codes, specifications and requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.08.05** Select sealants according to specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.08.06 Seal vertical and horizontal penetrations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.08.07** Fasten or wrap fire stopping to pipe **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Inspects pipe, tub and fittings before installation** **JP Sign-off** _____	**3.09.01** Determine inspection requirements **Rating** ____ **Complete** **Proof** ____ ☐ **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** ____ ☐ **Use** ____	**3.09.03** Manage the effect of environmental conditions on pipe, tube and fittings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.04** Demonstrate an understanding of characteristics of pipe and tube such as weight, density and corrosion resistance **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.05** Use visual inspection techniques **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	3.09.06 Sound cast iron pipe and fittings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.07** Interpret pipe and fitting markings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.08** Check against specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.09** Check and record Canadian Registration Number (CRN) on fittings and materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**3.09.10** Check and record heat treatment numbers on steel pipe **Rating** ____ **Complete** **Proof** ____ ☐ **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

Journeyperson Sign-off Task 4

Complete ☐

Incomplete ☐

Task 4
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 4.01 Learning Objective **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** ____ ☐ **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** ____ ☐ **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** ____ ☐ **Use** ____	**4.01.04** Select tube and tubing to confirm to applicable code **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.01.05** Calculate tube and tubing length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	4.01.06 Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.01.07** Measure tube and tubing length **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.01.08** Use types of cutters such as ratchet, minis and power **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.01.09** Ream tube and tubing after cutting using tools such as reaming tools and files **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.01.10** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 4.02 Learning Objective **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** ____ ☐ **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** ____ ☐ **Use** ____	**4.02.03** Recognize restrictions on bending of tube and tubing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.02.04** Perform measuring procedures such as gain or loss, centre to centre and measuring of angles **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.02.05** Calculate common angles such as 90°, 45° and 22.5° **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	4.02.06 Determine applications commonly requiring bending such as fixture finishing, instrumentation and oil lines **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.02.07** Locate bend on tube and tubing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**4.02.08** Select and use benders such as ratchet, power and crank **Rating** ____ **Complete** **Proof** ____ ☐ **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

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

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 Learning Objective **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** ____ ☐ **Use** ____	**5.01.02** Perform standard measuring procedures such as centre to centre, end to centre, and end to end **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.01.03** Calculate pipe length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.01.04** Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.01.05** Select and use tools and equipment such as hacksaws, chopsaws and plastic pipe cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	5.01.06 Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.01.07** Recognize hazards of cutting fibreglass pipe such as dust and exposed fibres **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			
SUB-TASK 5.02 Learning Objective **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** ____ ☐ **Use** ____	**5.02.02** Perform joining methods such as heat fusion welding, threading, solvent welding and using compression fittings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.03** Recognize characteristics of solvent cements, primers and transition glues such as working time and set-up time **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.04** Determine pipe applications such as drainage, water and chemicals **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.05** Determine compatibility of plastic pipe with solvents and glues **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	5.02.06 Determine plastic pipe contents such as water, natural gas and chemicals **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.07** Interpret labelling of plastic pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.08** Recognize hazards such as inadequate ventilation, fire and corrosive materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.09** Use tools and equipment such as manufacturer-specific crimping tools, heat fusion tools and expansion/contraction tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**5.02.10** Shave, bevel and grind fibreglass pipe **Rating** ____ **Complete** **Proof** ____ ☐ **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

SUB-TASK 5.02 continued Learning Objective **Joins plastic pipe**	**5.02.11** Apply solvents and glues	**5.02.12** Pre-assemble plastic pipe prior to installation	**5.02.13** Follow specified sequence of bolt tensioning
JP Sign-off _____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

6 - B
3 questions on the IP exam

Learning Outcome
Prepares and joins steel pipe

Journeyperson Sign-off Task 6

Complete ☐

Incomplete ☐

Task 6
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 6.01 Learning Objective **Cuts steel pipe** **JP Sign-off** _____	**6.01.01** Identify schedules and weights of steel pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.02** Perform standard measuring procedures such as centre to centre, end to centre, and end to end **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.03** Calculate pipe length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.04** Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.05** Select and use types of cutters such as one- wheel, three-wheel and four-wheel **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	6.01.06 Deburr steel pipe using tools such as grinders, files and reamers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.07** Prepare pipe end for weld by methods such as bevelling and mitering **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.01.08** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 6.02 Learning Objective **Joins steel pipe** **Continued next page**	**6.02.01** Identify schedules and weights of steel pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.02** Classify types of steel pipe such as stainless steel and carbon steel **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.03** Perform joining methods such as threading, welding, grooving and mechanical compression **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.04** Identify types and grades of fittings such as cast iron, malleable iron and forged steel **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.05** Identify types and grades of fastening hardware such as studs, bolts and nuts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	6.02.06 Use tools and equipment such as crimping tools, hand and power dies, and hand and power groovers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.07** Thread steel pipe by machine and hand **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.08** Fit up steel pipe and fittings for welding **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.09** Recognize hazards such as open flame, electrical hazards and moving machinery **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**6.02.10** Pre-assemble steel pipe prior to installation **Rating** ____ **Complete** **Proof** ____ ☐ **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

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

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
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 7.01 Learning Objective **Cuts case iron pipe** **JP Sign-off** _____	**7.01.01** Determine weights of cast iron pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.02** Perform standard measuring procedures such as centre to centre, end to centre, and end to end **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.03** Recognize hazards of cutting cast iron pipe such as projectile pieces and dust from chop saw **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.04** Calculate pipe length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.05** Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	7.01.06 Select and use types of cutters such as grinders, chop saws and snap cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.07** Support and secure pipe for cutting **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.01.08** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 7.02 Learning Objective **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** ____ ☐ **Use** ____	**7.02.02** Determine types of joining materials such as rubber, lead and oakum, and cold caulking compounds **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.03** Apply code requirements for joint construction **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.04** Follow manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.05** Recognize hazards of joining cast iron pipe such as repetitive stress injuries and working with hot lead **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	7.02.06 Use tools and equipment such as nut drivers, torque wrenches, packing irons and finishing irons **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.07** Install joining materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.08** Install clamps in proper position and with even tension **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.09** Transition from different materials or sizes of pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**7.02.10** Join ductile cast iron pipe for pressure applications **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Cuts glass pipe** **JP Sign-off** _____	**8.01.01** Demonstrate an understanding of properties of glass pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.02** Perform standard measuring procedures such as centre to centre, end to centre, and end to end **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.03** Recognize hazards of cutting glass pipe such as shards and sharp edges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.04** Calculate pipe length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.05** Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	8.01.06 Select and use types of cutters such as internal and external glass cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.07** Support and secure pipe for cutting **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.08** Clean glass pipe prior to cutting **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.09** Purge and neutralize pipe and fittings in existing systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.01.10** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 8.02 Learning Objective **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** ____ ☐ **Use** ____	**8.02.02** Establish use for pipe contents such as water, acid waste and corrosive waste **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.02.03** Determine fittings used for glass pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.02.04** Establish function of teflon lining in clamps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.02.05** Assemble pipe and fittings in place **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	8.02.06 Torque clamps to manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.02.07** Use tools and equipment such as ratchets, torque wrenches and nut drivers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**8.02.08** Transition from different materials or sizes of pipe **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Cuts asbestos-cement pipe** **JP Sign-off** _____	**9.01.01** Demonstrate an understanding of properties of asbestos-cement pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.02** Recognize applications of asbestos- cement pipe such as sanitary and storm drainage **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.03** Perform standard measuring procedures such as centre to centre, end to centre, and end to end **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.04** Recognize hazards of cutting pipe such as dust from quick-cut saw and weight of pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.05** Calculate pipe length and fitting allowances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	9.01.06 Calculate offsets and rolling offsets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.07** Select and use types of cutters such as quick-cut saw and snap cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.08** Limit dust by applying water when cutting **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.09** Support and secure pipe for cutting **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.01.10** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 9.02 Learning Objective **Joins asbestos-cement pipe** **JP Sign-off** _____	**9.02.01** Perform joining methods such as hub and spigot, and mechanical joints **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.02.02** Select types of fittings such as cast iron and asbestos-cement **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.02.03** Use tools and equipment such as wrenches, ratchets and pulling tools **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.02.04** Assemble pipe and fittings in place **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.02.05** Torque clamps to manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	9.02.06 Transition from different materials or sizes of pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**9.02.07** Bevel end of pipe **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Sizes pipe for sewers** **JP Sign-off** _____	**10.01.01** Calculate hydraulic load expressed in number of litres and fixture units **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.02** Apply applicable codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.03** Interpret sizing tables **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.04** Convert continuous and semi-continuous flows to hydraulic load **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.05** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	10.01.06 Convert from US gallons to imperial gallons **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.07** Convert between fixture units and litres **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.01.08** Calculate slope **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 10.02 Learning Objective **Installs manholes and catch basins** **JP Sign-off** _____	**10.02.01** Determine manhole applications such as cleanout, change of direction and evaluation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.02** Determine catch basin application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.03** Determine manhole and catch basin construction **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.04** Determine soil conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.05** Level the bed **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	10.02.06 Use levelling tools and equipment such as builder's levels, laser levels and sighting rods **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.07** Use lifting equipment such as lifting bar, lifting lugs and slings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.08** Position manholes and catch basins **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.09** Assemble sections of manholes and catch basins **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.10** Apply gaskets and sealants **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	10.02.11 Set elevation of manholes and catch basins **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.12** Locate entry and exit points **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.13** Make penetrations in manholes for vents, and entry and exit points **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.14** Seal penetration points **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.02.15** Channel bottom of manhole to direct waste **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

10 - C (cont'd)

Learning Outcome
Installs sewers

Task 10
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 10.03 Learning Objective **Installs piping for sewers** **JP Sign-off** _____	**10.03.01** Select types of piping such as plastic, concrete and cast iron **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.02** Determine soil conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.03** Apply applicable codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.04** Practice excavation safety **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.05** Lay out pipe routes for sewers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	10.03.06 Determine and place bedding material **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.07** Use levelling tools and equipment such as builder's levels, laser levels and sighting rods **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.08** Install cleanouts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.09** Connect to public or private sewer line **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**10.03.10** Distinguish between sanitary and storm sewers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	10.03.11 Calculate slope **Rating** ____ **Complete** **Proof** ____ ☐ **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

SUB-TASK 11.01 Learning Objective **Plans installation of private sewage disposal systems** **JP Sign-off** _____	**11.01.01** Determine types of private sewage disposal systems such as septic tanks, packaged sewage treatment plants and absorption fields **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.02** Determine private sewage disposal system components such as tanks, absorption fields and pump chambers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.03** Apply applicable jurisdictional codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.04** Identify soil conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.05** Determine limiting factors for location of private sewage disposal systems such as undesirable soil conditions, location of property boun-daries and water table elevation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	11.01.06 Size pump **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.07** Determine proximity of potable water sources and courses **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.08** Determine soil conditions such as type and structure of soil, and percolation rate **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.09** Calculate expected daily sewage volume **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.01.10** Select type of private sewage disposal system based on factors such as soil conditions and limiting factors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	11.01.11 Prepare and submit a site plan **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				
SUB-TASK 11.02 Learning Objective **Installs private sewage disposal system components** **JP Sign-off** _____	**11.02.01** Select all types of components such as pumps, distribution piping, septic tanks, distribution boxes, and bell-and-siphons **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.02** Identify types of tanks such as septic, aeration, holding and pumping chambers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.03** Determine soil conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.04** Select gaskets and sealants **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.05** Set and level bed for tanks **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	11.02.06 Set elevations of septic tanks and distribution piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.07** Use levelling tools and equipment such as builder's levels, laser levels and sighting rods **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.08** Position components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**11.02.09** Apply gaskets and sealants **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

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

Journeyperson
Sign-off
Task 12

Complete ☐

Incomplete ☐

Task 12
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Rating:
6 - Expert perform a task beyond expected level and quality of performance, lead and/or teach others
5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
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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 12.01 Learning Objective **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** ____ ☐ **Use** ____	**12.01.02** Apply applicable codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.03** Use terminology such as wet vent, trap arm and building drain **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.04** Determine types of vents such as continuous, wet and dry **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.05** Interpret applicable sizing tables **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	12.01.06 Convert continuous and semi-continuous flows to hydraulic load **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.07** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.08** Convert from US gallons to imperial gallons **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.09** Calculate slope **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.01.10** Calculate rainwater hydraulic load **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	12.01.11 Calculate developed length **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**12.02.02** Select types of components such as interceptors, backwater valves and cleanouts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.03** Apply applicable codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.04** Determine soil conditions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.05** Lay out underground pipe routes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	12.02.06 Set grades and elevations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.07** Determine and place bedding material **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.08** Use levelling tools and equipment such as builder's levels, laser levels and sighting rods **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.09** Distinguish between sanitary and storm systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.02.10** Install sewage pumps and sump pumps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 12.03 Learning Objective **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** ____ ☐ **Use** ____	**12.03.02** Determine embedded component material **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.03.03** Calculate finished elevation of components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.03.04** Assemble components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.03.05** Lay out and position components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	12.03.06 Stabilize components using materials such as styrofoam pieces, under- deck clamps and tie wire **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.03.07** Connect components to piping system **Rating** ____ **Complete** **Proof** ____ ☐ **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

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 Learning Objective **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** ____ ☐ **Use** ____	**12.04.02** Select types of components such as interceptors, floor drains and cleanouts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.04.03** Select pipe support methods such as hangers, riser clamps and attachment hardware **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.04.04** Lay out above-ground pipe routes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.04.05** Set grades and elevations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	12.04.06 Use tools and equipment such as tape measures, torches and levels **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.04.07** Distinguish between sanitary and storm systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**12.04.08** Install flashings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 13.01 Learning Objective **Sizes pipe for water services** **JP Sign-off** _____	**13.01.01** Apply plumbing codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.01.02** Calculate fixture units **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.01.03** Identify types of fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.01.04** Determine supply water pressure at the main **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.01.05** Calculate water requirement for fire suppression systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	13.01.06 Interpret water pipe sizing tables **Rating** ____ **Complete** **Proof** ____ ☐ **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** ____ ☐ **Use** ____			
SUB-TASK 13.02 Learning Objective **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** ____ ☐ **Use** ____	**13.02.02** Determine joining methods such as flaring, brazing, welding, flanged, compression and mechanical joint (bell and spigot) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.03** Recognize hazards of installing piping such as working in trenches and overhead hazards **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.04** Perform mathematical calculations such as elevations and amount of bedding material required **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.05** Select and use tools and equipment such as torches, grooving tools, flaring tools and tubing cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	13.02.06 Install pipe protection and bedding **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.07** Measure pipe lengths **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.08** Install piping components such as fittings, valves and valve boxes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**13.02.09** Select and install restraining systems such as thrust blocks, anchors and guides **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

13 - D
(cont'd)

Learning Outcome
Installs water services

Task 13
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

Knowledge, Skills and Abilities - Competencies

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

14 - D
10 questions on the IP exam

Learning Outcome
Installs water services

Journeyperson
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 Learning Objective **Sizes piping and equipment for potable water distribution systems** **JP Sign-off** _____	**14.01.01** Apply plumbing codes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.01.02** Calculate fixture units **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.01.03** Identify types of fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.01.04** Measure supply water pressure at the main **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.01.05** Measure minimum and maximum water pressure **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	14.01.06 Interpret water pipe sizing tables **Rating** ____ **Complete** **Proof** ____ ☐ **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** ____ ☐ **Use** ____	**14.01.08** Convert between imperial and metric measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.01.09** Consider fixture units served by the distribution system when sizing equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	
SUB-TASK 14.02 Learning Objective **Installs piping for potable water distribution systems** **JP Sign-off** _____	**14.02.01** Apply codes and jurisdictional regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.02** Select piping materials such as copper, plastic, epoxy-coated and stainless steel **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.03** Assemble types of piping configurations such as branch and home run **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.04** Perform joining methods such as soldering, brazing, crimping, welding, flanged, compression and mechanical joint (bell and spigot) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.05** Calculate rough-in requirements for piping of equipment and fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	14.02.06 Determine evaluations and routing for potable water distribution **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.07** Select and use tools and equipment such as torches, flaring tools and tubing cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.08** Measure pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.02.09** Install piping components such as fittings, valves and expansion joints **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

14 - D (cont'd)

Learning Outcome
Installs water services

Task 14
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 14.03 Learning Objective **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** ____ ☐ **Use** ____	**14.03.02** Identify domestic hot water heating equipment such as boilers and heat exchangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.03** Identify all types of potable water distribution components such as pressure reducing valves and pressure relief valves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.04** Calculate minimum and maximum allowable pressures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.05** Select tempered water valves and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	14.03.06 Determine requirements for isolation of equipment and fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.07** Select and use tools and equipment such as rigging equipment, power tools and torches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.08** Select equipment according to application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.09** Make piping connections to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.03.10** Position isolation valves for equipment and fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
SUB-TASK 14.04 Learning Objective **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** ____ ☐ **Use** ____	**14.04.02** Apply applicable codes and jurisdictional regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.03** Calculate installation requirements such as height, location and accessibility **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.04** Apply certification requirements for testing and certifying of cross-connection control devices **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.05** Assess level of hazard such as minor, moderate and severe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	14.04.06 Select cross-connection control device according to hazards and application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.07** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.08** Test cross-connection control devices **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**14.04.09** Recognize defective cross-connection control devices **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**15.01.02** Identify components of pressure systems such as pressure switches and pressure tanks **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.01.03** Determine system requirements such as pressure and demand **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.01.04** Calculate friction loss and head pressure **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.01.05** Determine voltage and horsepower requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	15.01.06 Calculate pressure tank draw-downs and pressure differences from tank to highest fixture **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.01.07** Select pumps and expansion tanks according to application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.01.08** Interpret pump curves and charts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		

SUB-TASK 15.02 Learning Objective **Installs piping for pumps** **JP Sign-off** _____	**15.02.01** Select all types of piping materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.02** Calculate pump requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.03** Identify grades of polyethylene pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.04** Identify all types of well connections such as torque arrestors, check valves and strainers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.05** Select accessories such as torque arrestors, check valves and strainers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	15.02.06 Determine heat tracing systems and insulation requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.07** Determine piping installation procedures for different types of pressure systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.08** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.02.09** Fit torque arrestors to pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

15 - D
(cont'd)

Learning Outcome
Installs pressure systems

Task 15
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 15.03 Learning Objective **Installs pumps and accessories** **JP Sign-off** _____	**15.03.01** Identify all types of pumps such as submersible, and shallow and deep-well jet **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.02** Identify all types of accessories such as gauges, pressure and level switches, pressure tanks and pressure tank tees **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.03** Determine voltage and horsepower pump requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.04** Identify types of piping materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.05** Determine types of well connections such as pitless adaptors and well seals **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	15.03.06 Determine locations of pumps such as in buildings, wells, rivers and lakes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.07** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.08** Select grade of polyethylene pipe for submersible application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.09** Fit torque arrestors to pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.10** Adapt pump installation method according to location **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	15.03.11 Coordinate and install heat tracing **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.12** Adjust pressure switches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.13** Coordinate power connections to pump and heat trace **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.14** Install vibration isolation for pump **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**15.03.15** Provide submersible pump support such as stainless steel cable and aviation cable **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**16.01.02** Determine types of supports such as carriers, blocking and wall hangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.03** Measure mounting height **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.04** Determine wall and floor material and construction **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.05** Determine types of fasteners such as anchors and bolts **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	16.01.06 Measure and lay out fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.07** Select and use tools and equipment such as powder-actuated tools, hammer drills, levels and tape measures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.08** Install blocking **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.09** Assemble fixture support **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.01.10** Mount and secure fixture supports **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

SUB-TASK 16.02 Learning Objective **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** ____ ☐ **Use** ____	**16.02.02** Determine fixture materials and finishes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.03** Choose types of fasteners such as water closet bolts, lag bolts and clamps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.04** Apply barrier-free requirements and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.05** Assemble fixtures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
16.02.06 Secure fixtures to manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.07** Connect fixtures to drainage and water distribution systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.08** Apply sealants such as caulking and silicone **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.09** Protect fixtures during installation and construction **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.10** Adjust fixture settings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.02.11** Use tools and equipment such as basin and spud wrenches, and tub benders **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

16 - E
(cont'd)

Learning Outcome
Installs plumbing fixtures and appliances

Task 16
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

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

Knowledge, Skills and Abilities - Competencies

SUB-TASK 16.03 Learning Objective **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** ____ ☐ **Use** ____	**16.03.02** Identify all types of commercial plumbing appliances such as dishwashers, garbage grinders, ice makers and potato peelers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.03** Identify all types of institutional plumbing appliances such as sterilizers and hospital cart washers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.04** Identify appliance materials and finishes **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.05** Select types of fasteners such as screws, bolts and anchors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	16.03.06 Assemble appliances **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.07** Secure appliances to manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.08** Connect appliances to drainage and water distribution systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.09** Apply sealants such as caulking and silicone **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.10** Protect appliances during installation and construction **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	16.03.11 Adjust appliance settings **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.12** Use tools and equipment such as spud wrenches and tube benders **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**16.03.13** Coordinate the connection of power to electrical components **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**17.01.02** Test composition of subject water such as hardness, pH level and turbidity **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.01.03** Identify contaminants **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.01.04** Determine function of water treatment equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.01.05** Formulate service/ regeneration interval of equipment (time and volume) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	17.01.06 Calculate amount of treated water required between regeneration cycles **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.01.07** Test incoming water quality for conditions such as hardness, pH level and turbidity **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.01.08** Select equipment based on incoming water quality **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		

SUB-TASK 17.02 Learning Objective **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** ____ ☐ **Use** ____	**17.02.02** Follow manufacturers' specifications and installation instructions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.02.03** Determine cycles of water treatment equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.02.04** Determine water quality and testing requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.02.05** Assemble equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	17.02.06 Position, mount and secure equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.02.07** Program equipment for regeneration frequency **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**17.02.08** Terminate equipment drain **Rating** ____ **Complete** **Proof** ____ ☐ **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

Journeyperson Sign-off Task 18

Complete ☐

Incomplete ☐

Task 18 Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

Rating:
6 - Expert perform a task beyond expected level and quality of performance, lead and/or teach others
5 - Highly skilled, perform a task to the highest level and quality of performance, supervise others
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 Learning Objective **Installs piping for hydronic systems** **JP Sign-off** _____	**18.01.01** Interpret and apply engineering specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.02** Identify high and low pressure hydronic systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.03** Assemble piping arrangements such as reverse-return, direct-return and series loop **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.04** Select and use installation tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.05** Select and use lubricants and sealants **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	18.01.06 Lay out pipe route and elevations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.07** Install drains and vents **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.01.08** Lay out and secure piping for in-floor heating **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 18.02 Learning Objective **Installs circulating pumps** **JP Sign-off** _____	**18.02.01** Identify all types of circulating pumps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.02** Identify flanges and unions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.03** Determine pump size and position **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.04** Interpret and apply engineering specifications such as voltage, speed and rotation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.05** Measure down-stream and upstream pressures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	18.02.06 Build support system such as hangers, bases and stands **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.07** Install Y-strainer and sidestream filters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.08** Install check valve **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.09** Install isolation valves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.02.10** Install loops to prevent thermal shock and deadhead **Rating** ____ **Complete** **Proof** ____ ☐ **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

SUB-TASK 18.03 Learning Objective **Installs hydronic system components** **JP Sign-off** _____	**18.03.01** Identify hydronic systems components such as air scoops, flow switches, gauges, heat exchanger, pot feeders, expansion tanks and low-water cutoffs **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.03.02** Select all types of valves such as makeup water, 3-way, isolation and zone **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.03.03** Determine component operation such as operating in direction of flow, regulating pressure and maintaining water quality **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.03.04** Determine system media such as water, glycol and additives **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.03.05** Locate components for proper operation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	18.03.06 Use guides and expansion joints such as bellows, flex connectors and piston joints **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				

SUB-TASK 18.04 Learning Objective **Installs piping and components for low pressure steam systems** **JP Sign-off** _____	**18.04.01** Identify all types of boilers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.02** Select low pressure steam system components such as low water cut offs, condensate return pumps and steam traps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.03** Determine operation of steam traps **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.04** Apply basic codes for boiler safety controls **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.05** Recognize dangers of steam and condensate **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	18.04.06 Select and install steam trap for application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.07** Use expansion joints such as bellows, piston and loop **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.08** Locate drip legs **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**18.04.09** Install components such as traps, strainers and valves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	

19 - F
5 questions on the IP exam

Learning Outcome
Installs hydronic heating and cooling generating systems

Journeyperson
Sign-off
Task 19

Complete ☐

Incomplete ☐

Task 19
Learning Needs

Sub-Tasks
Learning Objectives
to be completed
Comments

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

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

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

Knowledge, Skills and Abilities - Competencies

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

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 Learning Objective **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** ____ ☐ **Use** ____	**20.01.02** Compute temperature settings such as boiler, slab, and supply and return **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.01.03** Calculate heating curves **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.01.04** Locate system controls **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.01.05** Locate and install system sensors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	20.01.06 Set system priorities **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.01.07** Set pump speeds **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			

SUB-TASK 20.02 Learning Objective **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** ____ ☐ **Use** ____	**20.02.02** Determine specified locations for transfer units **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.02.03** Calculate heat loss to determine heating requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.02.04** Place transfer units on support pads **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**20.02.05** Mount transfer units on brackets or hangers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	20.02.06 Connect transfer units to piping **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs piping for natural gas systems** **JP Sign-off** _____	**21.01.01** Recognize hazards of natural gas **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.02** Recognize characteristics of natural gas **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.03** Apply jurisdictional regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.04** Follow sizing requirements for pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.05** Select types of piping materials such as steel, plastic and copper **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.01.06 Follow pressure testing requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.07** Determine gas service and meter location **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.08** Select and use tools and equipment such as power vises and pipe wrenches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.09** Identify leaks in piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.10** Compensate for movement of piping and systems with components such as swing joints and flex-connectors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.01.11 Identify location of dirt and drip pockets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.12** Install corrosion protection **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.01.13** Tag and label pipe according to codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **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 21.02 Learning Objective **Installs piping for liquefied petroleum gas (LPG) systems** **JP Sign-off** _____	**21.02.01** Identify all types of LPG such as propane and butane **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.02** Demonstrate an understanding of characteristics of LPG **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.03** Recognize hazards of LPG **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.04** Apply jurisdictional regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.05** Follow sizing requirements for pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.02.06 Select all types of piping materials such as steel, plastic and copper **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.07** Follow pressure testing requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.08** Determine gas service and meter location **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.09** Select and use tools and equipment such as power vices and pipe wrenches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.10** Coordinate with other underground services or utilities **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.02.11 Identify leaks in piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.12** Connect pipe to the tank **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.13** Compensate for movement of piping and systems with components such as swing joints and flex-connectors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.14** Identify location of dirt and drip pockets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.02.15** Install corrosion protection **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.02.16 Tag and label pipe according to codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **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

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 Learning Objective **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** ____ ☐ **Use** ____	**21.03.02** Recognize hazards of petroleum products **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.03** Apply jurisdictional regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.04** Follow sizing requirements for pipe **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.05** Select all types of piping materials such as steel, plastic and copper **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.03.06 Follow pressure testing requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.07** Select tools and equipment such as power vices and pipe wrenches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.08** Coordinate with other underground services or utilities **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.09** Identify leaks in piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.10** Connect pipe to the tank **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.03.11 Compensate for move-ment of piping and systems with components such as swing joints and flex-connectors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.12** Identify location of dirt and drip pockets **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.03.13** Tag and label pipe according to codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs equipment for fuel systems** **JP Sign-off** _____	**21.04.01** Identify all types of fuel system equipment installed by plumbers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.02** Determine installation requirements and procedures for fuel system equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.03** Determine equipment limitations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.04** Select types of components such as natural gas regulators, tanks and cylinders **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.05** Calculate equipment clearance and venting requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.04.06 Apply applicable codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.07** Select tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.08** Select equipment for fuel types **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.09** Layout equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**21.04.10** Connect equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	21.04.11 Install equipment components **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs piping for medical gas systems** **JP Sign-off** _____	**22.01.01** Apply applicable codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.02** Identify medical gas pipe and characteristics and require-ments such as grade of pipe, and degreasing and capping requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.03** Identify and meet certification requirements to join medical gas piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.04** Determine purging requirements and procedures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.05** Demonstrate an understanding of brazing material requirements and characteristics **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	22.01.06 Describe dangers associated with cross-connection **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.07** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.08** Coordinate rough-in requirements with third-parties **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.09** Tag and label pipes according to regulations and standards **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.10** Purge and braze piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	22.01.11 Pressure test piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.01.12** Test for cross-connection **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs equipment for medical gas systems** **JP Sign-off** _____	**22.02.01** Apply applicable codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.02** Meet jurisdictional certification requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.03** Identify types of equipment such as vacuum pumps, air compressors, bulk systems and reserve systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.04** Identify characteristics and requirements of medical gas equipment such as zone valves, alarms and manifolds **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.05** Select accessories such as pressure reducing valves, pressure relief valves and dew-point sensors **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	22.02.06 Apply diameter index safety system (DISS) **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.07** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.08** Connect pipe to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.09** Pressure test equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**22.02.10** Locate alarm points **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs piping for irrigation systems** **JP Sign-off** _____	**23.01.01** Select types of piping materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.01.02** Demonstrate an understanding of hazards associated with cross-connection/backflow preventers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.01.03** Identify types of irrigation systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.01.04** Determine trenching requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.01.05** Select and use installation tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	23.01.06 Perform service tests **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____				

SUB-TASK 23.02 Learning Objective **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** ____ ☐ **Use** ____	**23.02.02** Assemble layout of irrigation systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.02.03** Identify and select residential and commercial irrigation systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.02.04** Factor in winterization considerations such as slope, drainage points and purge points **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.02.05** Select and use installation tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	23.02.06 Select sprinkler heads according to application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**23.02.07** Adjust irrigation equipment such as sprinkler patterns and timers **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **Installs compressed air systems** **JP Sign-off** _____	**24.01.01** Identify piping materials such as steel, plastic and copper **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.01.02** Apply applicable codes and regulations regarding pressurized piping and vessels **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.01.03** Determine piping arrangements such as straight-line supply and loop **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.01.04** Recognize hazards of compressed air **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.01.05** Select tools and equipment such as pipe wrenches and vices **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	24.01.06 Connect pipe to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.01.07** Calculate slope of pipe to drain moisture **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			

SUB-TASK 24.02 Learning Objective **Installs equipment for compressed air systems** **JP Sign-off** _____	**24.02.01** Apply applicable codes and regulations **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.02** Select components of air systems such as air driers, flex-connectors, auto drains, pressure regulators and filters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.03** Demonstrate an understanding of compressor operation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.04** Identify types of compressors such as reciprocating and scroll **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.05** Identify safety devices such as relief valves and guards **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	24.02.06 Recognize hazards of compressed air **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.07** Select tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.08** Install vibration isolation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**24.02.09** Connect equipment to piping **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**25.01.02** Select piping materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.01.03** Calculate rough-in requirements for piping to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.01.04** Recognize limitations of materials **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.01.05** Select wet and dry systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	25.01.06 Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.01.07** Calculate pressures and number of heads **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.01.08** Size pipe according to application **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 25.02 Learning Objective **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** ____ ☐ **Use** ____	**25.02.02** Select pumps and their requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.02.03** Select cross-connection/backflow preventers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.02.04** Identify components such as gauges, pressure switches, supervisory valves and flow alarm switches **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.02.05** Select and use tools and equipment such as roll groovers, power hole saws and hydraulic cutters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	25.02.06 Select and install fire extinguishers, hose cabinets and trim **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.02.07** Connect pipe to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**25.03.02** Select piping materials such as plastic and copper **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.03** Demonstrate an understanding of flow-through systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.04** Select components such as joints and tees **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.05** Determine types of sprinklers such as concealed, sidewall, pendant and upright **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	25.03.06 Select sprinklers according to location **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.07** Fit fire protection system to existing plumbing system **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.08** Modify pipes to accommodate water requirements **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**25.03.09** Select and use tools and equipment such as head wrenches and manufacturer-specific tools **Rating** ____ **Complete** **Proof** ____ ☐ **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 Learning Objective **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** ____ ☐ **Use** ____	**26.01.02** Demonstrate joining methods such as soldering, brazing and compression **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.01.03** Calculate rough-in requirements for piping to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.01.04** Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.01.05** Size piping **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	26.01.06 Measure pipe lengths **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.01.07** Install piping components such as fittings, valves and expansion joints **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.01.08** Install dielectric isolation **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____		
SUB-TASK 26.02 Learning Objective **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** ____ ☐ **Use** ____	**26.02.02** Identify all types of process piping components such as pressure reducing valves, pressure relief valves and filters **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.03** Determine minimum and maximum allowable pressures **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.04** Interpret and follow manufacturers' installation instructions **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.05** Determine requirements for isolation of equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	26.02.06 Select and use tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.07** Position and secure the equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.08** Make piping connections to equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.09** Position isolation valves for equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**26.02.10** Select dielectric protection for use on tanks and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

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

Knowledge, Skills and Abilities - Competencies

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

SUB-TASK 28.01 Learning Objective **Diagnoses plumbing-related systems and components** **JP Sign-off** _____	**28.01.01** Interpret system design **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.02** Analyze system operational sequence **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.03** Identify system components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.04** Follow manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.05** Select and use diagnostic tools and equipment such as multimeters, differential pressure gauges, backflow testing kit and thermometers **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	28.01.06 Perform sensory inspections such as visual, smell and touch **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.07** Recognize system operation problems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.08** Test system media properties such as water quality, acidity and glycol **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.09** Interpret instruments and gauges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.10** Record and interpret operational data **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	28.01.11 Problem-solve **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.01.12** Understand client description of problems and system history **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____			
SUB-TASK 28.02 Learning Objective **Repairs plumbing-related systems and components** **JP Sign-off** _____	**28.02.01** Determine system design, operational sequence and components **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.02** Demonstrate an understanding of plumbing, medical gas, fuel and pressure systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.03** Inspect system components such as fixtures, appliances, piping, pumps and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.04** Apply manufacturers' specifications **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.05** Demonstrate an understanding of historic piping practices, piping materials, equipment and systems **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____
	28.02.06 Determine types of pipes and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.07** Select and use repair tools and equipment **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.08** Perform sensory inspections such as visual, smell and touch **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.09** Read instruments and gauges **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**28.02.10** Interpret operational data **Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

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
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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

28.02.11 Demonstrate an understanding of client description of problems and system history	**28.02.12** Recognize worn, damaged or defective devices	**28.02.13** Repair, service and rebuild devices	**28.02.14** Test system
Rating ____ **Complete** **Proof** ____ ☐ **Use** ____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____	**Rating** ____ **Complete** **Proof** ____ ☐ **Use** ____

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

APPENDIX B

ESSENTIAL SKILL	Required Essential Skills Tasks for Trades
Technical Reading	➢ 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	➢ 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	➢ 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 fro information from other trades people
Math	➢ 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	➢ 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	➢ 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	➢ 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	➢ 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	➢ 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