

## Qualification File

Revised Application Documentation: Version 3 Final /4March, 2015

NSDA Reference  
To be added by NSDA

### QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Name and address of submitting body:

IPSC

Indian Plumbing Skills Council

B-168/169, Ground Floor,

Okhla Indl.Area Phase 1,

DDA Sheds, New Delhi-110020.

T:+91 11 41513580,41400556

Name and contact details of individual dealing with the submission

Name: Harpreet Singh

Position in the organisation: Vice President

Address if different from above

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List of documents submitted in support of the Qualifications File

1. Composition of the Technical Committee
2. RFP for development of Occupational Standards
3. Selection process of the Consultants to develop Occupational Standards
4. Occupational Map
5. Draft MoU with Industry

## 6. QUALIFICATION FILE SECTION 1

### SUMMARY

Qualification Type	Plumbing
Qualification Title	Plumber (Maintenance & Servicing)
Classification code	PSC/Q0112
Body/bodies which will assess candidates	IPSC
Body/bodies which will award the certificate for the qualification.	IPSC
Body which will accredit providers to offer the qualification.	IPSC
Legal and/or other basis of the qualification.	NCO-2004/7136.90 PSC/ N 0112 PSC/ N 0108 PSC/ N 0109
Occupation(s) to which the qualification gives access	Level-3
Proposed level of the qualification in the NSQF.	A Plumber (Maintenance & Servicing) is responsible for assistance in maintenance and servicing of pipes and sanitary fixtures in housing, commercial and institutional setups.
Anticipated volume of training/learning required to complete the qualification.	1200Hrs
Entry requirements / recommendations.	8th (To be revised to 10th post 31st December, 2017)
Progression from the qualification.	Level -4 Plumber (General) – II Plumber (Pumps & E/M Mechanic)
Planned arrangements for RPL.	RPL arrangements and policies are under development
International comparability where known.	The Technical part of the NOSs are comparable to Canadian, British and Australian standards. However Numeracy, literacy and basic science levels are lower to match with the

existing Indian conditions.

Apart from this the Qualification pack, as per the NSDC policy for our country, is for a job role and on a trade or occupation. Following the same there cannot be a qualification pack comparability.

Formal structure of the qualification

Title of unit or other component (include any identification code used)	Mandatory/Optional	Estimated	
		size (learning hours)	Level
PSC/ N 0112 (Maintenance and servicing of plumbing systems)	Mandatory	600 Hrs	3
PSC/ N 0108 (Coordinating with the senior and other working team)	Mandatory	200 Hrs	Common across level 1-7
PSC/ N 0109 (Maintain a healthy, safe and secure working environment)	Mandatory	400 Hrs	Common across level 1-7

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here:

## QUALIFICATION FILE SECTION 1

### ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

[http://ipssc.in/training\\_assessment\\_partners.php](http://ipssc.in/training_assessment_partners.php)

Affiliation Process – Assessment Agency

1. Expression of Interest by Assessment Agency.
2. Submission of detail profile of assessment Agency
3. Submission of Due Diligence Report by Assessment Agency
4. Personal Meeting with the representative of Assessment Agency
5. Submission on Pool of Assessors.
6. Submission of sample question bank vetted by some Industry member.
7. MOU with Assessment Agency

Will the assessment body be responsible for RPL assessment?

Yes/No

Give details of how RPL assessment for the qualification will be carried out and quality assured.

RPL will be based on the same approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack.

The process of RPL assessment is under development.

### ASSESSMENT POLICY

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

#### PURPOSE OF ASSESSMENT

The purpose of the assessment is to identify if the learner has completely comprehended

the technicalities of the job role of a Plumber (Maintenance & Servicing) and thus, allows learners to progress to the LEVEL 4 and above. It also builds up the personal attributes of the learner to undertake work independently, become a good team player by being a competent listener, apt at taking instructions, and overall develop into a result oriented and positive person comfortable with laborious task of the trade.

GUIDELINES FORASSESSMENT

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack , every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

SCALING METHODS Pass mark: 70%

Unit Knowledge learning outcome	Approximate coverage	Valuation
Know the types of plumbing system and their layout requirements	Assignments	10%
Know the design techniques for plumbing	Assignments	10%
Understand the working of plumbing system components	Assignments and Practical Field work	10%
Knowledge of the fault diagnosis and rectification procedures for plumbing pipe work systems and components	Assignments and Practical Field work	10%
Understand the installation requirements of plumbing	Assignments and Practical Field work	20%

fixtures		
Knowledge of the various components of building structures and cutting, chasing	Assignments and Practical Field work	20%
Knowledge of common basic faults in plumbing and process for their rectification	Assignments and Practical Field work	20%

Detail any particular arrangements relating to candidates with disabilities or other special needs:

Based on the requirement, the candidates with disabilities or other special needs can be exempted from written/viva test and the same will be facilitated by assessor through best possible alternative means.

Detail any particular assessment policy or arrangements which have been put in place relating to the validation of prior learning:

Under Development

Please attach any documents giving further information about assessment and/or RPL.  
Give details of the document(s) here:

		Marks Allocation			
		Total Mark (300 MARKS)	Out Of	Theory	Skills Practical
1. PSC/ N 0112		100	20	10	10
Maintenance and servicing of plumbing systems	PC1. understand the installed system				
	PC2. diagnose problems		20	10	10

	and/or failures in plumbing system for the purpose of identifying activities necessary to maintain the system				
	PC3. clear the work area and waste disposal		10	5	5
	PC4. respond to emergency situations for the purpose of resolving immediate safety concerns		20	10	10
	PC5. deliver the task in time		10	5	5
	PC6. ensure minimal wastage of material		10	5	5
	PC7. ensure minimal damage to other systems		10	5	5
		Total	100	50	50
2. PSC/N0108	PC1. receive work instructions and raw materials from reporting senior	100	5	2	3
Coordinating with the senior and other working team	PC2. communicate to reporting senior about task status, repairs and maintenance of tools and equipment as required		5	2	3
	PC3. communicate any potential hazards and expected process disruptions		10	5	5
	PC4. handover completed task to reporting senior		10	5	5
	PC5. receive feedback from reporting senior		10	5	5

	PC6. report any anticipated reasons for delays		10	5	5
	PC7. work as a team with colleagues and share work as per the work load and skills		10	5	5
	PC8. work with colleagues of other teams		5	2	3
	PC9. communicate and discuss work flow related difficulties in order to find solution with mutual agreement		10	5	5
	PC10. taking instructions from the reporting senior		10	5	5
	PC11. report problem/incident etc.		5	3	2
	PC12. put team over individual goals		5	3	2
	PC13. resolve conflicts		5	3	2
			100	50	50
3.					
PSC/N0109 Maintain a healthy, safe and secure working environment	PC1. to avoid accidents related to use of sharp tools and equipment		15	5	10
	PC2. attend and actively participate in the health and safety campaigns organized by the company or any other authority	100	10	5	5
	PC3. use or wear safety gear (helmet, gloves, goggles, safety shoes, ear plugs, etc.) as per the rules of the company		10	5	5
	PC4. attend fire drills or any other safety drills organized by the company or any other authority		15	10	5
	PC5. learn first-aid procedure		15	10	5

	PC6. use insect repellents and safe drinking water		10	5	5
	PC7. use site toilets and follow other hygienic practices		15	10	5
	PC8. understand the evacuation and emergency procedures		10	5	5
			100	55	45

#### Means of assessment 1

The assessment comprises of a combination three assessment techniques i.e.

- 1 Practical Assessment
- 2 Viva/ Structured Interview
- 3 Written Assessments

## QUALIFICATION FILE SECTION 3

### EVIDENCE OF NEED

<p>What evidence is there that the qualification is needed?</p> <ul style="list-style-type: none"><li>• 70 Job roles identified by the Industry including our Governing Board.</li><li>• 30-32 job roles were scrutinized and given the project to IMaCS</li><li>• 25 job roles finalized after industry interaction during the workshops and individual meetings.</li><li>• No Physical document is available as evidence.</li></ul>
<p>What is the estimated uptake of this qualification and what is the basis of this estimate?</p> <ul style="list-style-type: none"><li>• 25 Job roles were identified after understanding the market need and demand. Our Agency met with around 200 industry people while developing these Qualification Packs. Individual interactions, workshops, Group Discussion were done to identify market demand and need.</li></ul>
<p>What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?</p> <ul style="list-style-type: none"><li>• As mentioned, initially 70 job roles were identified but only 25 job roles finally identified to avoid overlapping. Job roles were approved on the basis of carrier progression of an Individual.</li></ul>
<p>In the research and/or development, what steps were taken to identify potential barriers to access (eg related to education, race, caste, religion, gender or disability) and eliminate or overcome these?</p> <ul style="list-style-type: none"><li>• NA</li></ul>
<p>Has the qualification been through a formal approval procedure(s)? (If so, explain the process and the outcome.)</p> <ul style="list-style-type: none"><li>• Yes, workshops were organised to get the Qualification Pack validated by the Industry.</li><li>• QRC has been done by NSDC.</li></ul> <p>(Document Available)</p>
<p>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?</p>

- Detail Sustainability Plan available.

What arrangements are in place to inform people about the qualification(s) and the advantages it offers?

- All qualification Packs are available on our Website and NSDC website. Participation in seminars, workshops etc to make the people aware about the QPs .
- Launched e – magazine to reach to the people.

Please attach any documents giving further information about any of the topics above. Give details of the document(s) here:

QUALIFICATION FILE SECTION 4

SUMMARY EVIDENCE OF LEVEL

Level of qualification: -3

Summary of Direct Evidence (from learning outcomes):

PSC/N0112 Maintenance and servicing of plumbing systems

Description	This OS unit is about maintenance and servicing of plumbing systems in housing, commercial and institutional setups
Scope	<p>This unit/task covers the following:</p> <p>Maintenance and Servicing It covers diagnose problems and/or failures in plumbing system for the purpose of identifying activities necessary to maintain the system It covers promptly addressing a snag in the plumbing systems</p>
Knowledge and Understanding (K)	
A. Organizational Context	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: quality and delivery standards, safety and hazards, integrity, dress code, etc. KA2. risk and impact of not following defined procedures/work instructions KA3. how to handover/ takeover of the equipment / work area as per the instructions</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. different types of materials (CI/GI/PVC pipes, etc.), basic sanitary fittings (valves, clamps, elbows, etc.) and fixtures (showers, taps, basins, etc.) KB2. various types of defects such as leakages, improper alignment, etc. KB3. basic plumbing terminology KB4. relevant hand and power tools such as wrenches, pliers, screwdriver, power drill, pipe cutter, crimping tool, pipe bender, threading tool, hacksaw, metal file, etc. KB5. units of measurement KB6. material disposal procedure, importance of appropriate disposal of material</p>

PSC/N0108 Coordinating with the senior and other working team

Description	This OS unit is about communicating with colleagues and seniors in order to achieve smooth and hazard free work flow
Scope	This unit/task covers the following: Interact with senior receive work instructions, discuss task status and receive feedback  Interact with colleagues within and outside the team communicate and discuss work flow, problems faced, possible solutions and pass on the learning within and outside the team
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. company's policies on: preferred language of communication, quality delivery standards and personnel management KA2. reporting structure
Technical Knowledge	The user/individual on the job needs to know and understand: KB1. effective ways of communication KB2. building team co-ordination
Skills (S)	
A. Core Skills/ Generic Skills Communication skills	
The user/individual on the job needs to know and understand how to: SA1. communicate in Hindi / regional language	
Teamwork	
SA2. share work load as required SA3. accept and interpret instructions and requirements correctly SA4. co-ordinate with co-workers and sub-ordinates	
B. Professional Skills	Decision making
The user/individual on the job needs to know and understand: SB1. how to spot and communicate potential areas of disruptions to work process and report the same SB2. when to report to senior and when to deal with a colleague individually, depending on the type of concern	
Reflective thinking	
SB3. improve work processes by interacting with others and adopting best practices	

PSC/N0109 MAINTAIN A HEALTHY, SAFE AND SECURE WORKING ENVIRONMENT

Description	This OS unit is about monitoring your working environment and making sure it meets requirements for health and safety	
Scope	This unit/task covers the following: Communicate to reporting senior about process flow improvements that can reduce anticipated or repetitive hazards mishandling of tools and equipment electrical or any other problem at the construction site that could result in accident	
Knowledge and Understanding (K)		
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. company's policy on: safety and hazards and personnel management KA2. reporting structure	
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. how to use tools and equipment without suffering any physical harm KB2. first-aid procedure KB3. diseases caused due use of unsafe water, biting of insects and following unhygienic practices KB4. evacuation and emergency procedures	
Skills (S)		
A. Core Skills/ Generic Skills Communication skills		
The user/individual on the job needs to know and understand how to: SA1. effectively communicate the danger		
Organising skills		
SA2. keep all the tools in an organised manner so as to avoid accidents SA3. keep the work environment safe and clean		
B. Professional Skills	Decision making	
The user/individual on the job needs to know and understand how to: SB1. report potential sources of danger SB2. follow prescribed procedure in the event of an accident SB3. wear appropriate safety gear to avoid an accident		
Reflective thinking		
SB4. learn from past mistakes regarding use of hazardous tools and equipment		

Summary of other evidence (if used):

QUALIFICATION FILE SECTION 4,

EVIDENCE OF LEVEL

LEVELLING SCORECARD

NOS	Lvl1	LVL2	LVL-3	LVL-4	LVL-5	LVL-6	LVL-7
Awareness of basic techniques related to cutting bending and joining of sanitary fixtures and fittings.			✓				
Knowledge of basic unit of measurement, perform simple measurements and mark positions as per instructions			✓				
Procedure for material disposal, the risk and impact of not following defined procedures/work instructions.			✓				
Knowledge of company's policies on quality and delivery standards, safety and hazards, integrity, dress code, etc.			✓				
Ability to assist in handover/ takeover of the equipment / work area as per the instructions.			✓				
Ability to communicate in hindi/regional language.			✓				
Ability to stack and store materials and equipment appropriately at the task site			✓				
Ability to coordinating with the senior and other working team			✓				
Ability to receive work instructions, discuss task status and receive feedback			✓				
Ability to communicate and discuss work flow, problems faced, possible solutions and pass on the learning within and outside the team			✓				
Ability to receive work instructions and raw materials from reporting senior			✓				
Ability to communicate to reporting senior about task status, repairs and maintenance of tools and equipment as required			✓				
Ability to communicate any potential hazards and expected process disruptions			✓				
Ability to handover completed task to reporting senior			✓				
Ability to receive feedback from reporting senior			✓				
Ability to report any anticipated reasons for delays Interact with colleagues within and outside the team			✓				
Ability to work as a team with colleagues and share work as per the work load and skills			✓				
Ability to work with colleagues of other teams			✓				
Ability to maintain a healthy, safe and secure working environment			✓				
Ability to process flow improvements that can reduce anticipated or repetitive hazards			✓				
Attend and actively participate in the health and safety campaigns organized by the company or any other authority Using safety gear and following healthy practices			✓				
Use or wear safety gear (helmet, gloves, goggles, safety shoes, ear plugs, etc.) as per the rules of			✓				

the company						
Attend fire drills or any other safety drills organized by the company or any other authority			✓			
Learn first-aid procedure and use insect repellents and safe drinking water			✓			
Ability to use site toilets and follow other hygienic practices			✓			
Ability to understand the evacuation and emergency procedures			✓			
Ability to effectively communicate the danger			✓			
Ability to keep all the tools in an organized manner so as to avoid accidents and keep the work environment safe and clean			✓			
Knowledge of evacuation and emergency procedures			✓			
Ability to report potential sources of danger			✓			
Ability to communicate and discuss work flow related difficulties in order to find solution with mutual agreement			✓			
Ability to take instructions from the reporting senior			✓			
Ability to report problem/incident etc.			✓			
Ability to put team over individual goals Ability to resolve conflicts			✓			
Ability to carry out pre-welding and welding work as per requirement/ specifications			✓			
Ability to assist in positioning and welding of piping, fittings and valves using welding equipment			✓			
Ability to assist shutting down of the equipment and clearing the work area and disposition of waste.			✓			
Ability to assemble welding and jointing tools and equipment and prepare/assemble material required for the task			✓			
Knowledge of workplace and equipment safety requirements			✓			
Awareness of safety procedure for electrical / welding activities			✓			
Ability to identify tools and equipment and assist in maintaining and repairing them.			✓			
Ability to follow and check the relevant joining procedure is as per the specification.			✓			
Ability to make the joints as specified using the appropriate welding technique of the required quality and specified dimensional accuracy			✓			
Ability to test jointed fittings and fixtures for proper functioning			✓			
Ability to basic terminology used in sanitary welding			✓			
knowledge of manual welding process selected and basic awareness of the different types of welding equipment			✓			
knowledge of consumables associated with the chosen welding process and how to extract required information from drawings and welding procedure specifications			✓			

Ability to calculate material requirements			✓			
knowledge of types and features of welded joints			✓			
Awareness of post welding quality testing techniques			✓			
Ability to install internal and external pipe assemblies, fittings, valves, appliances such as pressure-meter, water meter and water heaters, and fixtures such as sinks and toilets, using hand and power tools			✓			
Ability to connect internal piping network with external service mains such as water and sewerage lines			✓			
knowledge of External levels and standard bench marks with respect to sewerage and drainage			✓			
Knowledge of establishing levels and slopes of drainage and sewerage piping.			✓			
Ability to distinguish between levels and distances of water and sewer line.			✓			
Ability to service line networks such as water and sewer mains and its connection norms			✓			
Knowledge of different types of materials, basic sanitary fittings.			✓			
Ability to connect internal piping with external mains as per the norms			✓			
Ability to install, repair and maintenance of internal and basic external pipeline networks in housing, commercial and institutional setups			✓			
Ability to understand the task to be done			✓			
Ability to assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking, or cutting, threading and joining equipment.			✓			
Ability to establish the sequence of internal and external pipe installations			✓			
Ability to Plan installation in or around obstructions such as electrical wiring, pavements, etc.			✓			
Ability to locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels			✓			
Ability to cut openings in structures to accommodate pipes and pipe fittings, using hand and power tools (if required)			✓			
Ability to measure, cut, thread, and bend pipe to required angle, using hand and power tools or equipment such as cutting, threading and bending equipment			✓			
Ability to hang steel supports from ceiling joists to hold pipes in place (if required)			✓			
Ability to install pipe assemblies, fittings, valves, appliances such as pressure-meter, water meter and water heaters, and fixtures such as sinks and toilets, using hand and power tools			✓			
Ability to test the joints and fixtures for proper functioning			✓			
Ability to deliver the task in time			✓			

Ability to achieve quality finishing in repair of piping systems and fittings			✓			
Ability to ensure minimal wastage of material and damage to other systems			✓			
Knowledge of different types of materials basic sanitary fittings and fixtures			✓			
Awareness of techniques related to cutting, bending and joining of fittings and fixtures			✓			
Knowledge of various types of defects such as leakages, improper alignment, etc.			✓			
KB4. basic plumbing terminology			✓			
Knowledge of relevant hand and power tools			✓			
Ability to identify the problem/fault in the system and its cause.			✓			
Ability to establish the sequence of repair/maintenance. Ability to assemble fittings, fixtures and tools required for the task			✓			
Ability to locate and mark the position of the component to be replaced/repared, using measuring instruments such as rulers and levels.			✓			
Ability to cut openings in structures to remove defected pipes and pipe fittings, using hand and power tools.			✓			
Ability to replace with new pipe assemblies, fittings, and fixtures.			✓			
Ability to repair internal piping network connections with external service mains such as water and sewerage lines.			✓			
Ability to test the pipe joints and fixtures for proper functioning			✓			
Ability to deliver the task in time			✓			
Ability to achieve quality finishing in repair of piping systems and fittings			✓			
Ability to ensure minimal wastage of material and damage to other systems			✓			
Ability to understand the installed system			✓			
Ability to test run the system to ensure proper operation			✓			
Ability to respond to emergency situations for the purpose of resolving immediate safety concerns			✓			
Ability to ensure timely and smooth running of plumbing systems and minimal wastage of consumable materials for optimal operation			✓			
Knowledge of basics of plumbing systems and plumbing systems monitoring devices.			✓			
Awareness of dos and donts of various plumbing systems as per their Standard Operating Procedures (SOPs).			✓			
Knowledge of different types of operation schedules.			✓			
Awareness of basic plumbing / operation terminology			✓			
Ability to diagnose problems and/or failures in plumbing system for the purpose of identifying activities necessary to maintain the system			✓			

Ability to use relevant tools, equipment and consumables for maintenance of piping fixtures and fittings			✓			
Ability to operate, maintain and repair tools			✓			
Ability to carry out diagnosis and identify faulty components in the system			✓			
Ability to replace pipes and fixtures so as to rectify the system			✓			
Ability to determine work requirement and sequence of masonry work			✓			
Ability to carry out ground levelling, surfacing and sloping related tasks prior to beginning work			✓			
Ability to assemble material and tools as per the requirement			✓			
Ability to Mix cement using hoes, cement-mixing equipment, and/or hand tools			✓			
Ability to cut or break bricks and concrete using hammers, powered abrasive saws, paving breakers, drills, and/or hand tools			✓			
Knowledge of laying bricks/mortar/concrete in manholes, water tanks, septic tanks and openings/cuts made in structure for installing plumbing systems			✓			
Ability to perform proper finishing work			✓			
Knowledge of different types of materials (bricks, cements, mortar, concrete, etc.), and fixtures (basins, water and septic tanks, etc.)			✓			
Knowledge of techniques related to laying of bricks, laying of bed concrete and encasing of pipes with concrete and gully traps, etc.			✓			
Awareness of direction of flow of water and waste water			✓			
Knowledge of relevant tools such as hoe, trowel, float, hammer, etc.			✓			
Ability to execute the masonry work as per requirement			✓			

OTHER EVIDENCE OF LEVEL [This need only be filled in where evidence other than primary outcomes was used to allocate a level]

Nature of Evidence	Comments	EL-1 ✓	EL <sup>1</sup> ✓	EL+1 ✓
1.				
2.				
3.				

QUALIFICATION FILE SECTION 5

EVIDENCE OF RECOGNITION OR PROGRESSION

In the course of the research and/or development was there any direct evidence that the qualification(s) will be recognised by particular bodies – eg for entry to work or further study?

List any agreements which have been reached with regulatory bodies on recognition.

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

Horizontal and vertical mobility options have been articulated.

Please attach any documents giving further information about any of the topics above.  
Give details of the document(s) here:

QUALIFICATION FILE SECTION 6

EVIDENCE OF INTERNATIONAL COMPARABILITY

List any comparisons which have been established.