

## QUALIFICATIONS PACK- OCCUPATIONAL STANDARDS FOR PLUMBING

### What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding



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## Introduction

### Qualifications Pack – Plumbing Site Engineer

**SECTOR:** PLUMBING INDUSTRY

**SUB-SECTOR:** Contractors

**OCCUPATION:** Plumbing

**REFERENCE ID:** PSC/Q0115

**ALIGNED TO:** NCO-2004/2142.20

**Plumbing Site Engineer:** Plumbing Site Engineer is an important job role in carrying out technical, organisational and supervisory role in plumbing construction projects in 'contractors' segment.

**Brief Job Description:** A Plumbing Site Engineer is responsible for carrying out technical, organisational and supervisory role in plumbing construction projects.

**Personal Attributes:** He should be able to work independently on his assignment. He should be comfortable in performing laborious work. He should be a good listener and follower of instructions. He should be a good team player. He should be result oriented and positive in attitude.

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Job Details	Qualifications Pack Code	PSC/Q0115		
	Job Role	Plumbing Site Engineer		
	Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
	Sector	Plumbing	Drafted on	15/07/13
	Sub-sector	Contractors	Last reviewed on	30/07/13
	Occupation	Plumbing	Next review date	31/01/14

Job Role	Plumbing Site Engineer
Role Description	Responsible for carrying out technical, organisational and supervisory role in plumbing construction projects.
NVEQF/NVQF level	7
Minimum Educational Qualifications*	Degree / Diploma in Civil Engineering
Maximum Educational Qualifications*	N.A.
Training (Suggested but not mandatory)	On-the-job training.
Experience	Minimum 5 years of working experience required on site of construction projects.
Applicable National Occupational Standards (NOS)	<b>Compulsory:</b> <ol style="list-style-type: none"> <li>PSC/ N 0107 (<a href="#">Resource management</a>)</li> <li>PSC/ N 0105 (<a href="#">Inspection and quality check of basic plumbing systems</a>)</li> <li>PSC/ N 0119 (<a href="#">Review and communicate designs and plans related to plumbing work</a>)</li> <li>PSC/ N 0108 (<a href="#">Coordinating with the senior and other working team</a>)</li> <li>PSC/ N 0109 (<a href="#">Maintain a healthy, safe and secure working environment</a>)</li> <li>PSC/ N 0121 (<a href="#">Co-ordinating with client, consultants, subcontractors, supervisors and others</a>)</li> <li>PSC/ N 0122 (<a href="#">Preparing reports and logs as required</a>)</li> <li>PSC/ N 0123 (<a href="#">Quantity survey and costs estimation in a plumbing project</a>)</li> <li>PSC/ N 0124 (<a href="#">Compliance with applicable codes and regulations in plumbing projects</a>)</li> <li>PSC/ N 0125 (<a href="#">Commissioning of plumbing system</a>)</li> </ol> <b>Optional:</b> <ol style="list-style-type: none"> <li>N.A.</li> </ol>
Performance Criteria	As described in the relevant OS units

Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
OS	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard , which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.

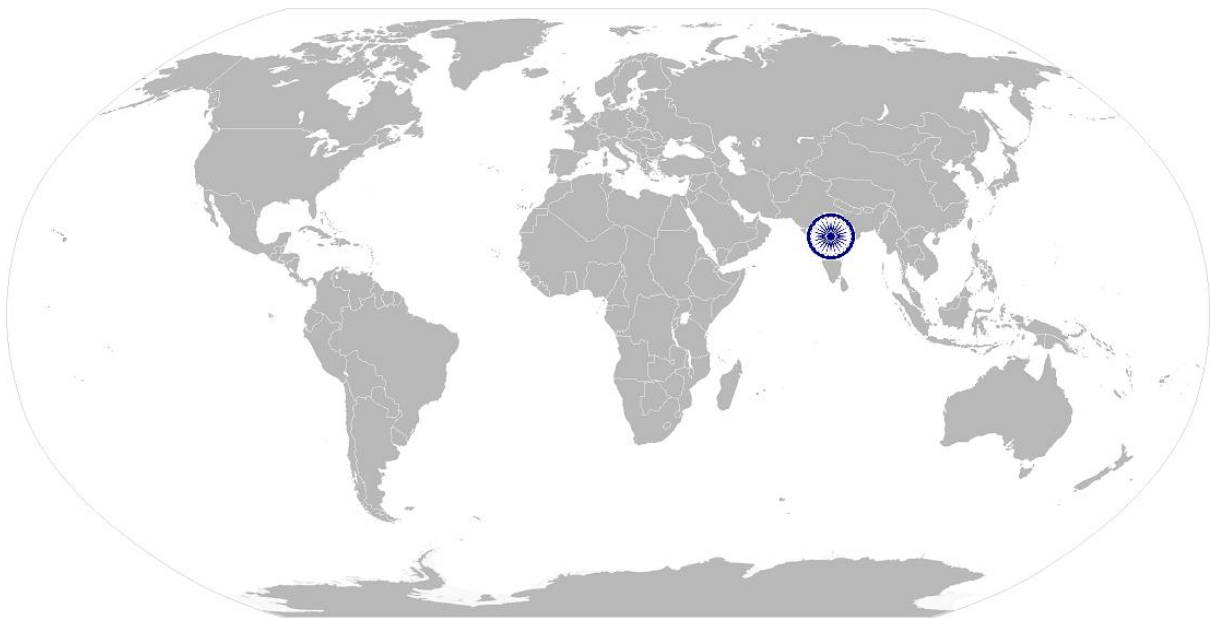
Acronyms	Keywords /Terms	Description
	IPSC	Indian Plumbing Skills council
	NOS	National Occupational Standards
	NSQF	National Skills Qualification Framework
	NVEQF	National Vocational Educational Qualification Framework
	NVQF	National Vocational Qualification Framework
	OS	Occupational Standards
	PC	Performance Criteria
	QP	Qualification Pack
	SSC	Sector Skills Council



PSC/N0107 Resource management (Manpower, Material and Tools)

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# National Occupational Standard



## Overview

This unit is about management of resources in terms of manpower, material and tools during execution of a plumbing assignment/task.



## PSC/N0107 Resource management (Manpower, Material and Tools)

<b>Unit Code</b>	<b>PSC/N0107</b>
<b>Unit Title (Task)</b>	<b>Resource management (Manpower, Material and Tools)</b>
<b>Description</b>	This OS unit is about management of resources in terms of manpower, material and tools during execution of a plumbing assignment/task
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Manpower management</p> <ul style="list-style-type: none"> <li>workforce planning and work assignment related activities</li> </ul> <p>Material and tools management</p> <ul style="list-style-type: none"> <li>planning and maintaining inventory of material required for the task</li> <li>maintenance and management of tools and equipments</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Manpower management</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. schedule assign day to day activities to plumbers</p> <p>PC2. overall supervision of plumbing work at the site</p> <p>PC3. management of manpower in cases of change of schedule/plan</p>
<b>Material &amp; tools management</b>	<p>PC4. keeping track of material usage</p> <p>PC5. aid in obtaining materials necessary to complete the job</p> <p>PC6. management of plumbing tools and equipment</p> <p>PC7. management of material/tools in cases of change of schedule/plan</p> <p>PC8. maintain plumbing tools and equipment</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<p>the user/individual on the job needs to know and understand:</p> <p>KA1. impact of various resources on cost, quality, productivity, delivery and safety</p> <p>KA2. material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure</p> <p>KA3. risk and impact of not following defined procedures/work instructions</p> <p>KA4. handover/ takeover of the equipment / work area as per requirement</p> <p>KA5. skills and expertise of the working team</p> <p>KA6. procedure to put requisition for materials and supplies</p> <p>KA7. procedure of providing adequate feedback about working team</p>



## PSC/N0107 Resource management (Manpower, Material and Tools)

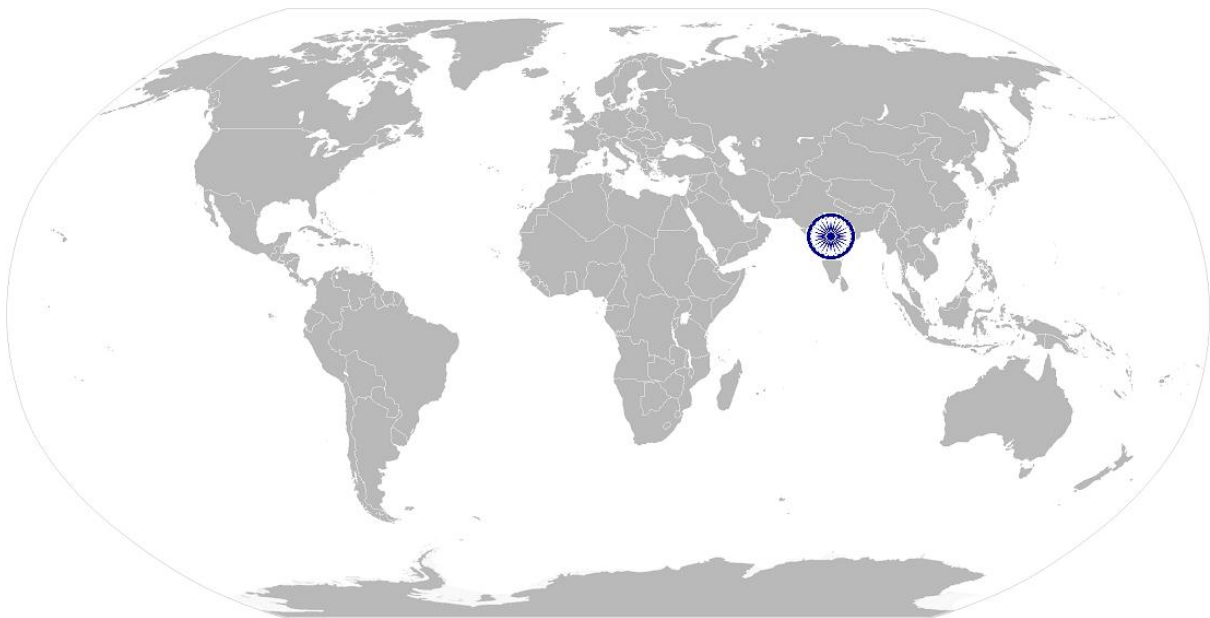
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. different types of materials (ci/gi/pvc pipes, etc.), basic sanitary fittings (valves, clamps, elbows, etc.) and fixtures (showers, taps, basins, etc.)</p> <p>KB2. techniques related to cutting, bending and joining of fittings and fixtures</p> <p>KB3. basic plumbing terminology</p> <p>KB4. relevant hand and power tools such as wrenches, plier, screwdriver, power drill, pipe cutter, crimping tool, pipe bender, threading tool, hacksaw, metal file, etc.</p> <p>KB5. units of measurement</p> <p>KB6. material disposal procedure, importance of appropriate disposal of material</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. communicate in Hindi / regional language</p> <p>SA2. instruct workers and explain the task to be performed</p>
	<p><b>Administrative skills</b></p> <p>SA3. put requisition for more resources in terms of manpower, material and/or tools</p> <p>SA4. re-allocate resources in case of change of plan or emergency situations</p> <p>SA5. give feedback and convey the ways of improvement</p> <p>SA6. resolve work problems and recommend measures to improve productivity</p>
<b>B. Professional Skills</b>	<b>Resource management skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. estimate resources required for a work/task</p> <p>SB2. plan and maintain an optimum inventory of resources for on-going work</p> <p>SB3. determine the accuracy and thoroughness of work</p> <p>SB4. use a variety of measuring devices</p> <p>SB5. identify tools, equipment and procedures required for installing piping fixtures and fittings</p> <p>SB6. operate, maintain and repair tools</p>
	<b>Reflective thinking</b>
	<p>SB7. plan the work process in such a way which improves quality with minimal resource utilization</p> <p>SB8. apply learning of past errors</p> <p>SB9. improve productivity and increase efficiency based on the past experience</p>
<b>Critical thinking</b>	





**PSC/N0107 Resource management (Manpower, Material and Tools)**

	SB10. use logic and reasoning to identify the probable solutions for correcting run-time errors and resource shortfalls
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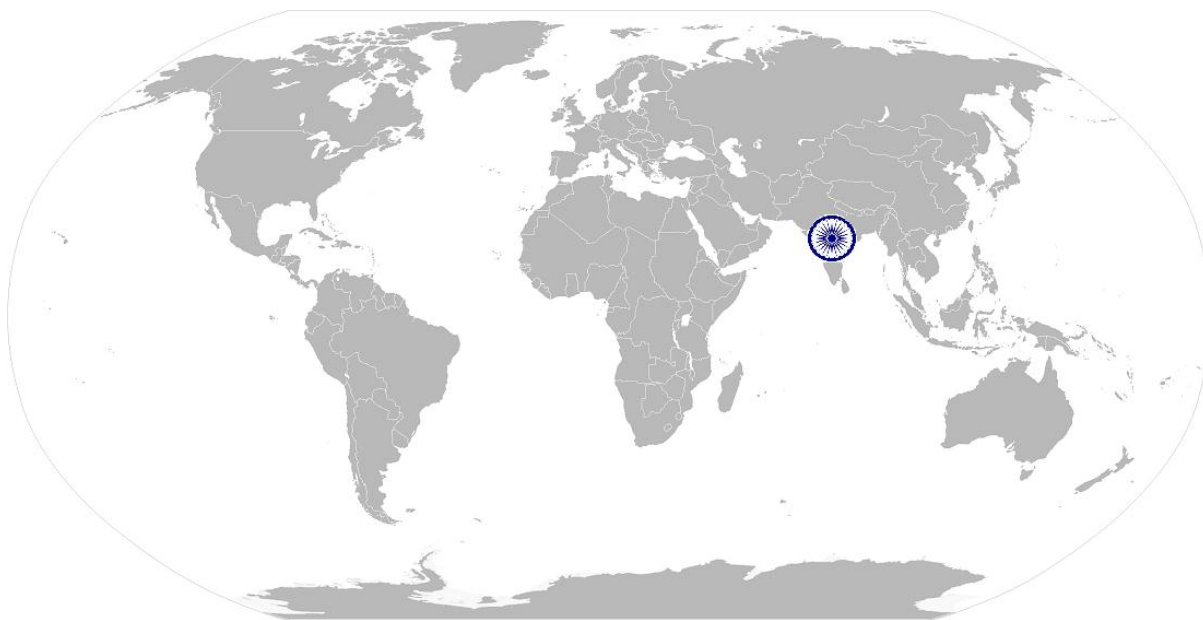




**PSC/N0107 Resource management (Manpower, Material and Tools)**

**NOS Version Control**

NOS Code	PSC /N0107		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14

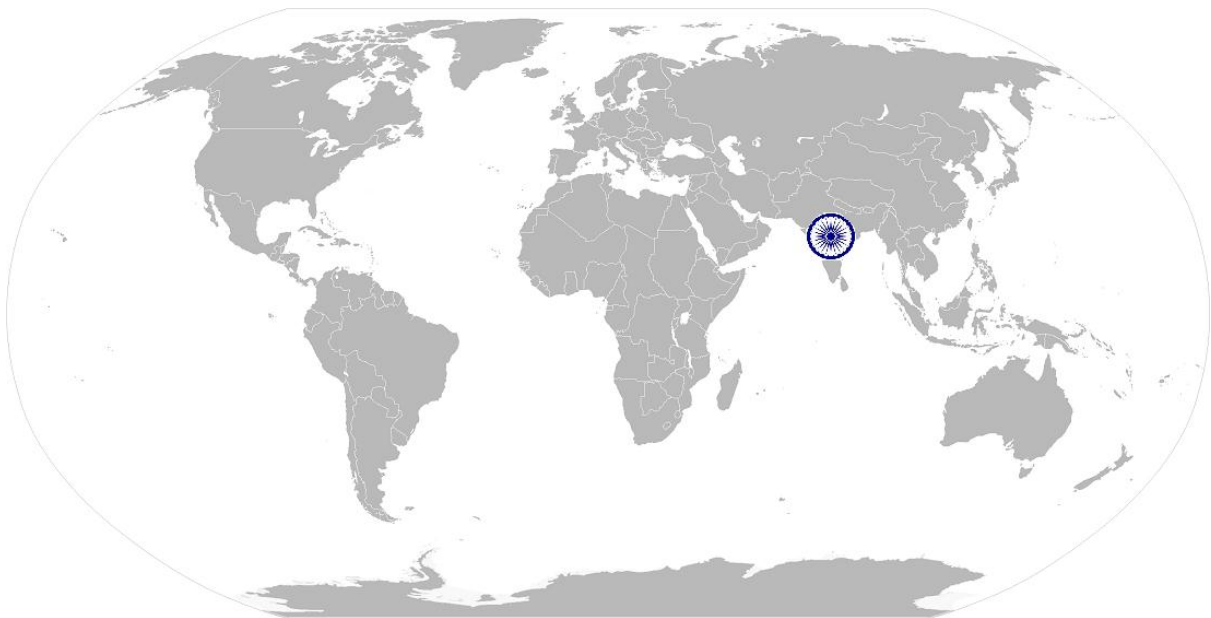




PSC/N0105 Inspection and quality check of basic plumbing systems

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# National Occupational Standard



## Overview

This unit is about inspection and quality check of basic plumbing systems in housing, commercial and institutional setups.



## PSC/N0105 Inspection and quality check of basic plumbing systems

<b>Unit Code</b>	<b>PSC/N0105</b>
<b>Unit Title (Task)</b>	<b>Inspection and quality check of basic plumbing systems</b>
<b>Description</b>	This OS unit is about inspection and quality check of basic plumbing systems in housing, commercial and institutional setups.
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Inspection</p> <ul style="list-style-type: none"> <li>It covers inspection of all the systems for required functioning</li> </ul> <p>Quality check</p> <ul style="list-style-type: none"> <li>Ensure quality in all installations and connections</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Preparatory site inspection</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. access completion of required work</p> <p>PC2. verify field measurements as per drawings / site requirements</p> <p>PC3. assure availability and quality of required materials</p> <p>PC4. identify any non-conformances to the requirements for the work/task to begin</p> <p>PC5. identify potential problems</p>
<b>Work-in-progress and completion related inspection</b>	<p>PC6. keep a track of adequate and proper usage of material</p> <p>PC7. ensure fittings and fixtures are installed as per the layout</p> <p>PC8. Inspect all the systems for required functioning</p> <p>PC9. ensure quality in all installations and connections in terms of proper alignment, water tight joints (pressure and flow/smoke tests), access area for cleaning of fixtures, etc.</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<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.</p> <p>KA2. risk and impact of not following defined procedures/work instructions</p> <p>KA3. general inspection procedures</p>
<b>B. Technical Knowledge</b>	<p>KB1. different types of materials (CI/GI/PVC pipes, etc.), basic sanitary fittings (valves, clamps, elbows, etc.) and fixtures (showers, taps, basins, etc.)</p> <p>KB2. techniques related to cutting, bending and joining of fittings and fixtures</p> <p>KB3. various types of defects such as leakages, improper alignment, etc.</p>



**PSC/N0105 Inspection and quality check of basic plumbing systems**

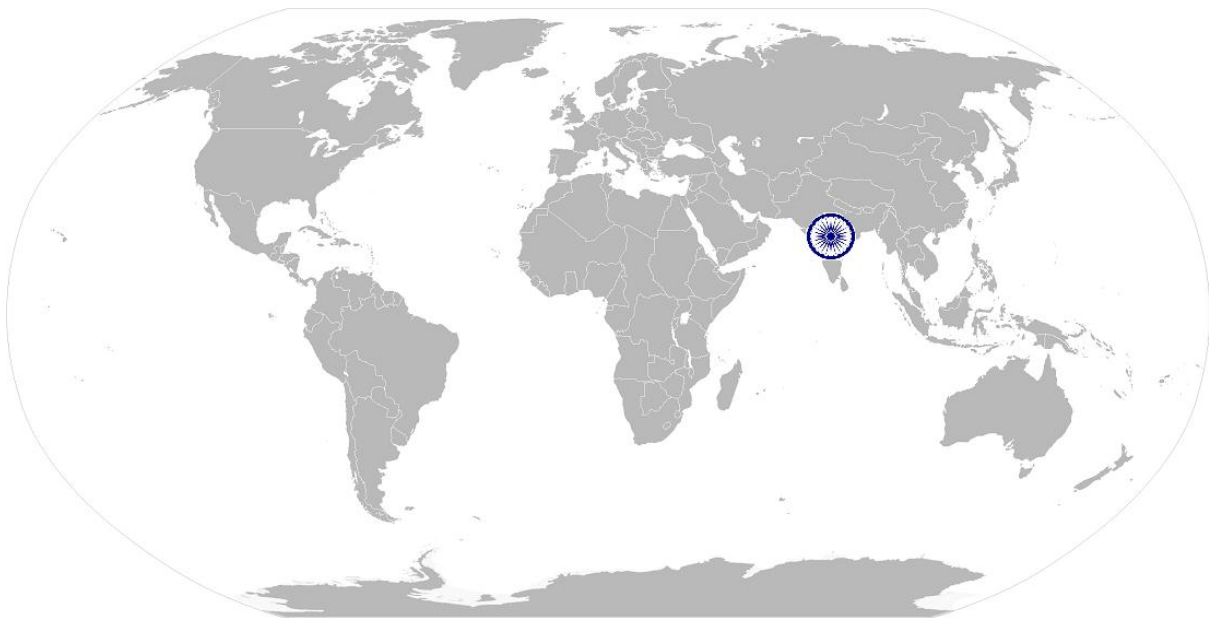
	KB4. procedure for conducting pressure and flow/smoke tests KB5. basic plumbing terminology KB6. units of measurement KB7. material disposal procedure, importance of appropriate disposal of material
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	The user/individual on the job needs to know and understand how to: SA1. communicate in Hindi / regional language SA2. instruct and enquire the workers related to quality check
	<b>Measurement/positioning skills</b>
	SA3. perform simple mathematical calculations SA4. measure and mark positions as per instructions
<b>B. Professional Skills</b>	<b>Critical thinking and decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. spot signs of deviation from quality and communicate to the reporting authority SB2. learn from past errors
	<b>Quality check</b>
	SB3. ensure quality at work-in-progress stage SB4. check for quality parameters in the installations and connections of various fittings and fixtures



**PSC/N0105 Inspection and quality check of basic plumbing systems**

**NOS Version Control**

NOS Code	PSC /N0105		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14

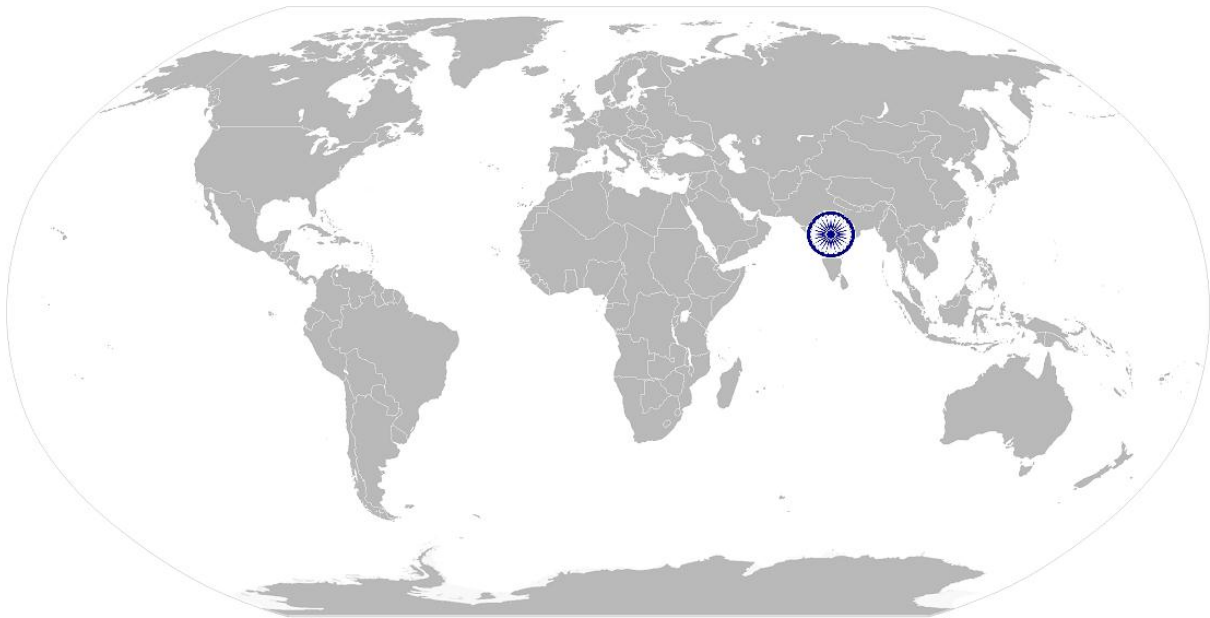




PSC/N0119 Review and communicate designs and plans related to plumbing work

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# National Occupational Standard



## Overview

This unit is about reviewing designs and plans related to plumbing work and communicating its application on the work site.



## PSC/N0119 Review and communicate designs and plans related to plumbing work

<b>Unit Code</b>	<b>PSC/N0119</b>
<b>Unit Title (Task)</b>	<b>Review and communicate designs and plans related to plumbing work</b>
<b>Description</b>	This OS unit is about reviewing designs and plans related to plumbing work and communicating its application on the work site
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Review and communicate designs and plans</p> <ul style="list-style-type: none"> <li>study of designs and plans in context of specifications of the site and communicate the work plan to work supervisors of the respective teams</li> </ul> <p>Compliance</p> <ul style="list-style-type: none"> <li>continually ensure compliance of work in progress and completed work in accordance with the specified designs and plans</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Review and communicate designs and plan</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. understand the prepared design</p> <p>PC2. checking plans, drawings and quantities for accuracy of calculations</p> <p>PC3. validate the designs, ensuring that designs meet the site's requirement</p> <p>PC4. communicate and explain the final designs and suitable work plan to respective plumbing team supervisors</p>
<b>Compliance</b>	<p>PC5. ensure designs are applied correctly during work in progress</p> <p>PC6. do a quality check of all the completed work to ensure compliance with the design</p> <p>PC7. ensure that the communicated execution plan is followed by all working teams</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<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.</p> <p>KA2. importance of review of designs and plans</p> <p>KA3. risk and impact of not following defined procedures/work plans</p> <p>KA4. how to obtain designs and plans</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. basic plumbing principles related to design, planning and execution</p> <p>KB2. relevant designing and planning software such as AutoCAD, MS Office, etc.</p> <p>KB3. design and plumbing terminologies</p>





**PSC/N0119 Review and communicate designs and plans related to plumbing work**

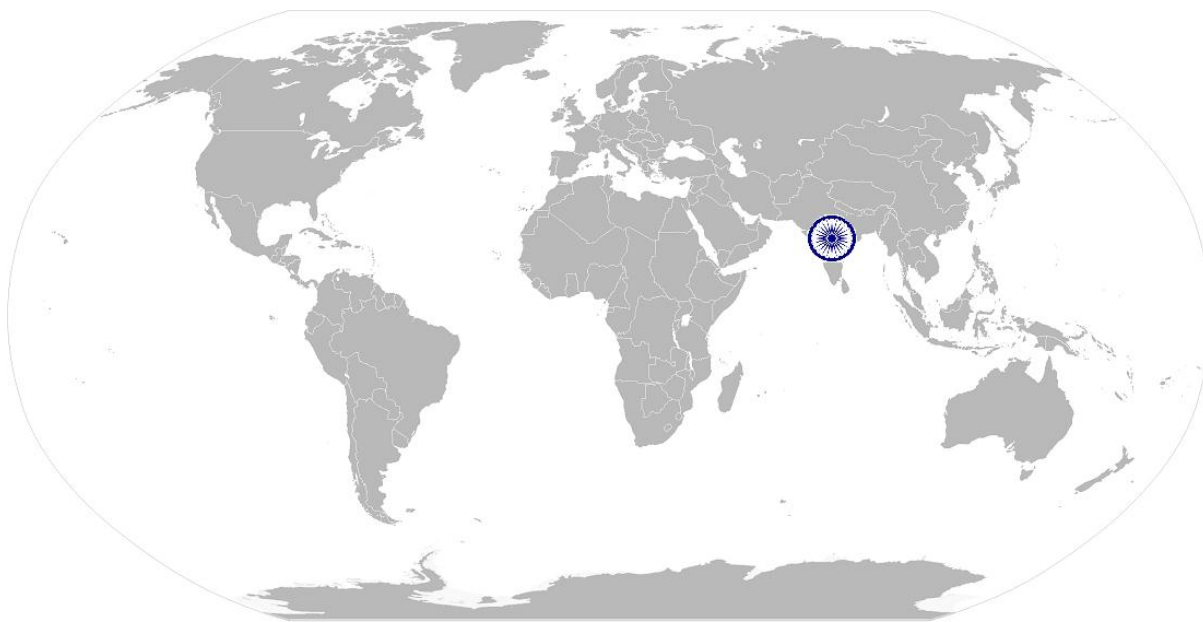
	KB4. units of measurements KB5. basic runtime errors and their resolution ensuring minimal deviation from the design/plan KB6. how to calculate material requirements as per drawing
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication and reading skills</b>
	The user/individual on the job needs to know and understand how to: SA1. communicate in Hindi, English and/or regional language SA2. read designs and plans
	<b>Estimation skills</b>
	SA3. perform mathematical calculations SA4. basic quantity and time estimations as per the design/plan
<b>B. Professional Skills</b>	<b>Critical thinking and decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. spot signs of deviation from design/plan and take appropriate action SB2. learn from past errors
	<b>Quality check</b>
	SB3. ensure quality at work-in-progress stage according to design requirements SB4. check for quality parameters in the installed plumbing systems
	<b>Co-ordination and supervision</b>
	SB5. allocate work to supervisors as required SB6. communicate instructions and requirements correctly SB7. co-ordinate with co-workers, sub-ordinates and seniors for design/plan related compliance



PSC/N0119 Review and communicate designs and plans related to plumbing work

## NOS Version Control

NOS Code	PSC / N 0119		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	01/09/13
Industry Sub-sector	Contractors	Last reviewed on	30/10/13
		Next review date	30/04/14

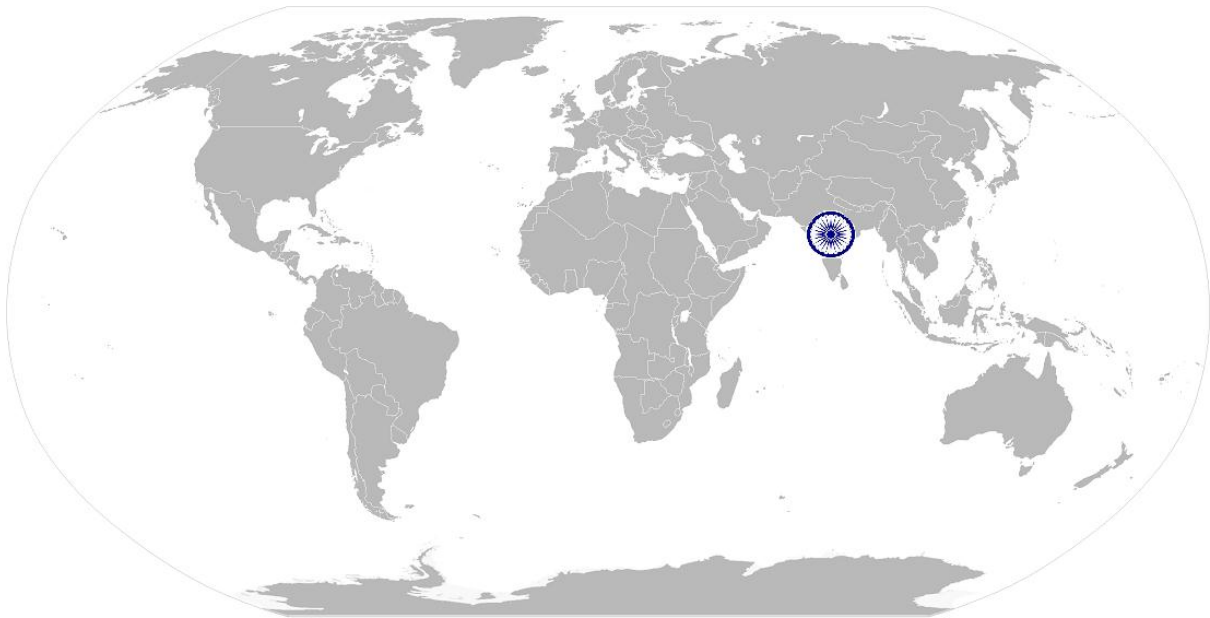




PSC/N0108 Coordinating with the senior and other working team

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# National Occupational Standard



## Overview

This unit is about team work and level of communication with colleagues or clients. It determines the ability to work as a team member, share work and multi-task in order to achieve the deliverables on schedule.



## PSC/N0108 Coordinating with the senior and other working team

National Occupational Standard	<b>Unit Code</b>	<b>PSC/N0108</b>
	<b>Unit Title (Task)</b>	<b>Coordinating with the senior and other working team</b>
	<b>Description</b>	This OS unit is about communicating with colleagues and seniors in order to achieve smooth and hazard free work flow
	<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Interact with senior</p> <ul style="list-style-type: none"> <li>receive work instructions, discuss task status and receive feedback</li> </ul> <p>Interact with colleagues within and outside the team</p> <ul style="list-style-type: none"> <li>communicate and discuss work flow, problems faced, possible solutions and pass on the learning within and outside the team</li> </ul>
	<b>Performance Criteria(PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Interaction with senior</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. receive work instructions and raw materials from reporting senior</p> <p>PC2. communicate to reporting senior about task status, repairs and maintenance of tools and equipment as required</p> <p>PC3. communicate any potential hazards and expected process disruptions</p> <p>PC4. handover completed task to reporting senior</p> <p>PC5. receive feedback from reporting senior</p> <p>PC6. report any anticipated reasons for delays</p>
	<b>Interact with colleagues within and outside the team</b>	<p>PC7. work as a team with colleagues and share work as per the work load and skills</p> <p>PC8. work with colleagues of other teams</p> <p>PC9. communicate and discuss work flow related difficulties in order to find solution with mutual agreement</p> <p>PC10. taking instructions from the reporting senior</p> <p>PC11. report problem/incident etc.</p> <p>PC12. put team over individual goals</p> <p>PC13. resolve conflicts</p>
	<b>Knowledge and Understanding (K)</b>	
	<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: preferred language of communication, quality delivery standards and personnel management</p> <p>KA2. reporting structure</p>

## PSC/N0108 Coordinating with the senior and other working team

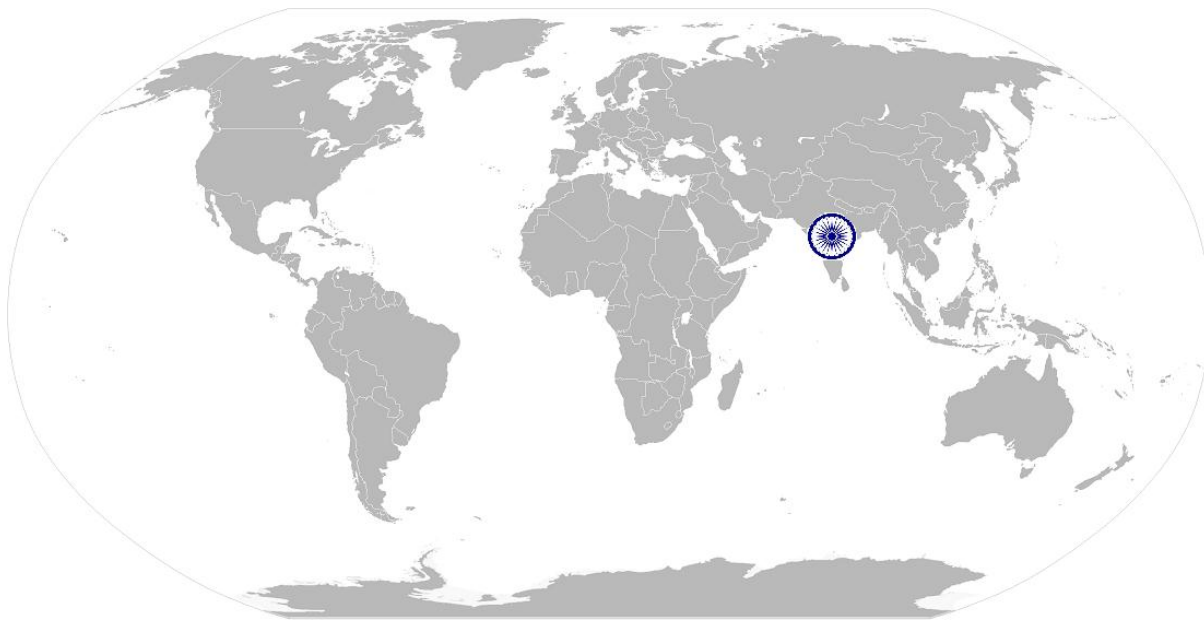
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. effective ways of communication</p> <p>KB2. building team co-ordination</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. communicate in Hindi / regional language</p>
	<b>Teamwork</b>
	<p>SA2. share work load as required</p> <p>SA3. accept and interpret instructions and requirements correctly</p> <p>SA4. co-ordinate with co-workers and sub-ordinates</p>
<b>B. Professional Skills</b>	<b>Decision making</b>
	<p>The user/individual on the job needs to know and understand:</p> <p>SB1. how to spot and communicate potential areas of disruptions to work process and report the same</p> <p>SB2. when to report to senior and when to deal with a colleague individually, depending on the type of concern</p>
	<b>Reflective thinking</b>
	<p>SB3. improve work processes by interacting with others and adopting best practices</p>



PSC/N0108 Coordinating with the senior and other working team

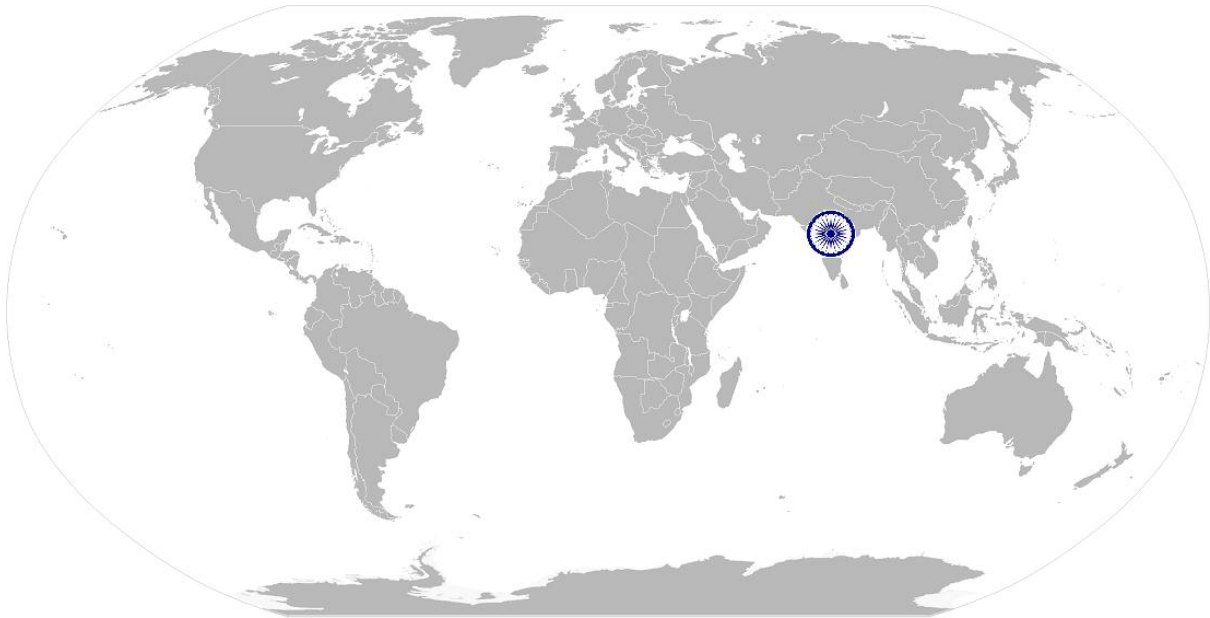
## NOS Version Control

NOS Code	PSC/N0108		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14





# National Occupational Standard



## Overview

This unit is about being aware of, communicating and taking steps towards minimizing potential hazards and dangers of accidents on the job and maintaining occupational health and safety.





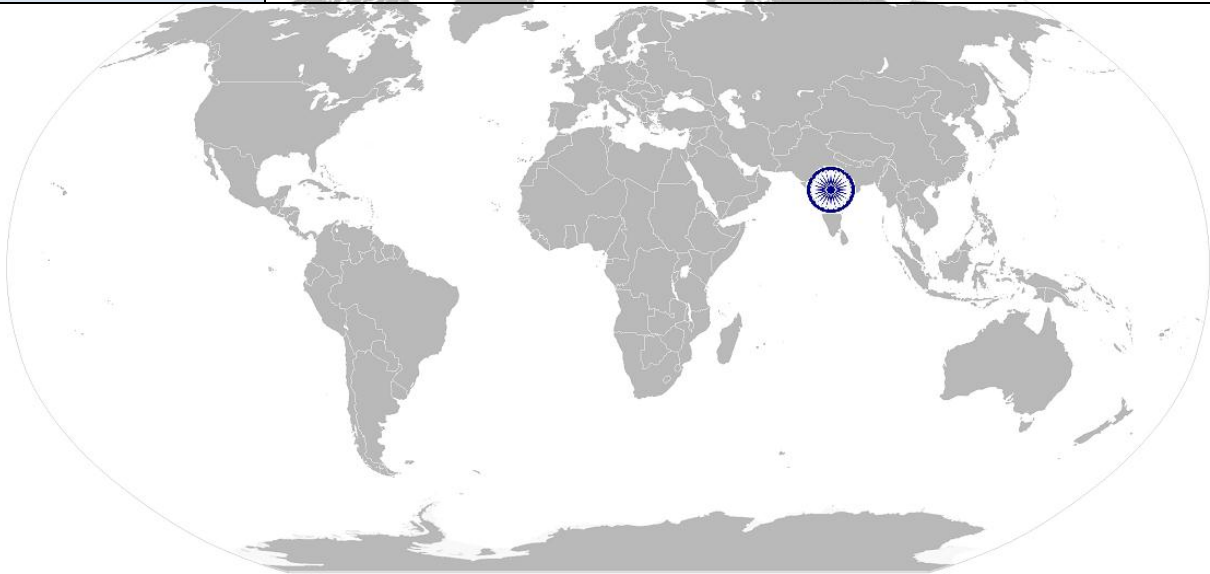
## PSC/N0109 Maintain a healthy, safe and secure working environment

Unit Code	PSC/N0109
Unit Title (Task)	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	<p>This unit/task covers the following:</p> <p>Communicate to reporting senior about</p> <ul style="list-style-type: none"> <li>process flow improvements that can reduce anticipated or repetitive hazards</li> <li>mishandling of tools and equipment</li> <li>electrical or any other problem at the construction site that could result in accident</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Communicating potential accident points	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. to avoid accidents related to use of sharp tools and equipment</p> <p>PC2. attend and actively participate in the health and safety campaigns organized by the company or any other authority</p>
Using safety gear and following healthy practices	<p>PC3. use or wear safety gear (helmet, gloves, goggles, safety shoes, ear plugs, etc.) as per the rules of the company</p> <p>PC4. attend fire drills or any other safety drills organized by the company or any other authority</p> <p>PC5. learn first-aid procedure</p> <p>PC6. use insect repellents and safe drinking water</p> <p>PC7. use site toilets and follow other hygienic practices</p> <p>PC8. understand the evacuation and emergency procedures</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 policy on: safety and hazards and personnel management</p> <p>KA2. reporting structure</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to use tools and equipment without suffering any physical harm</p> <p>KB2. first-aid procedure</p> <p>KB3. diseases caused due use of unsafe water, biting of insects and following unhygienic practices</p> <p>KB4. evacuation and emergency procedures</p>
Skills (S)	



## PSC/N0109 Maintain a healthy, safe and secure working environment

<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	The user/individual on the job needs to know and understand how to: SA1. effectively communicate the danger
	<b>Organising skills</b>
	SA2. keep all the tools in an organised manner so as to avoid accidents SA3. keep the work environment safe and clean
<b>B. Professional Skills</b>	<b>Decision making</b>
	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
	<b>Reflective thinking</b>
	SB4. learn from past mistakes regarding use of hazardous tools and equipment

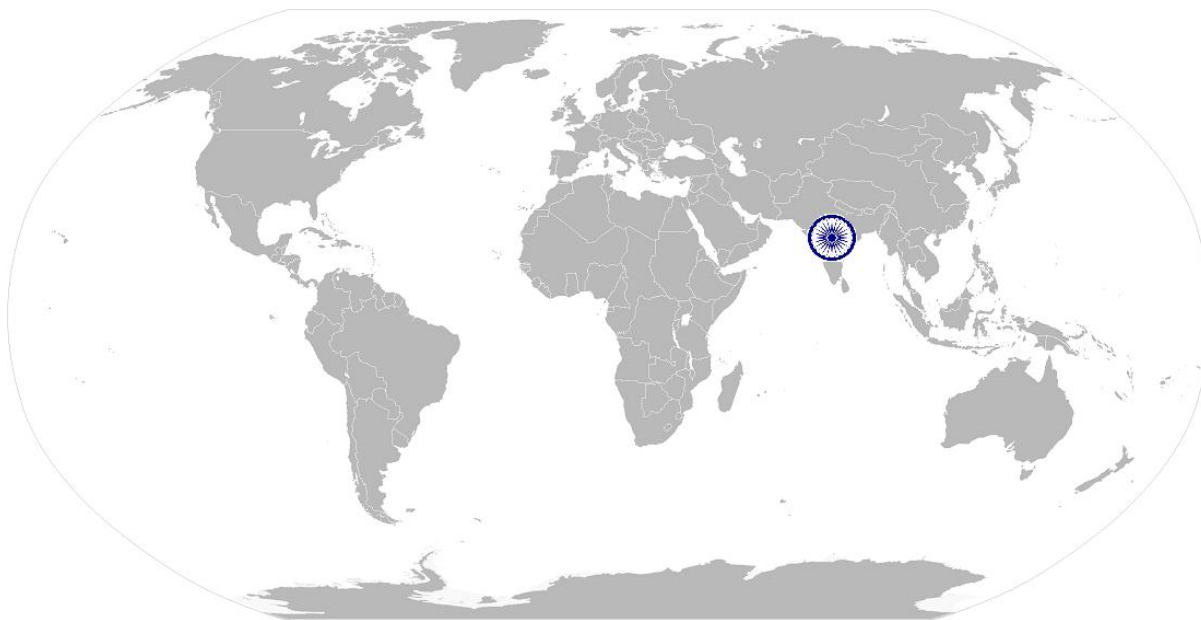




## PSC/N0109 Maintain a healthy, safe and secure working environment

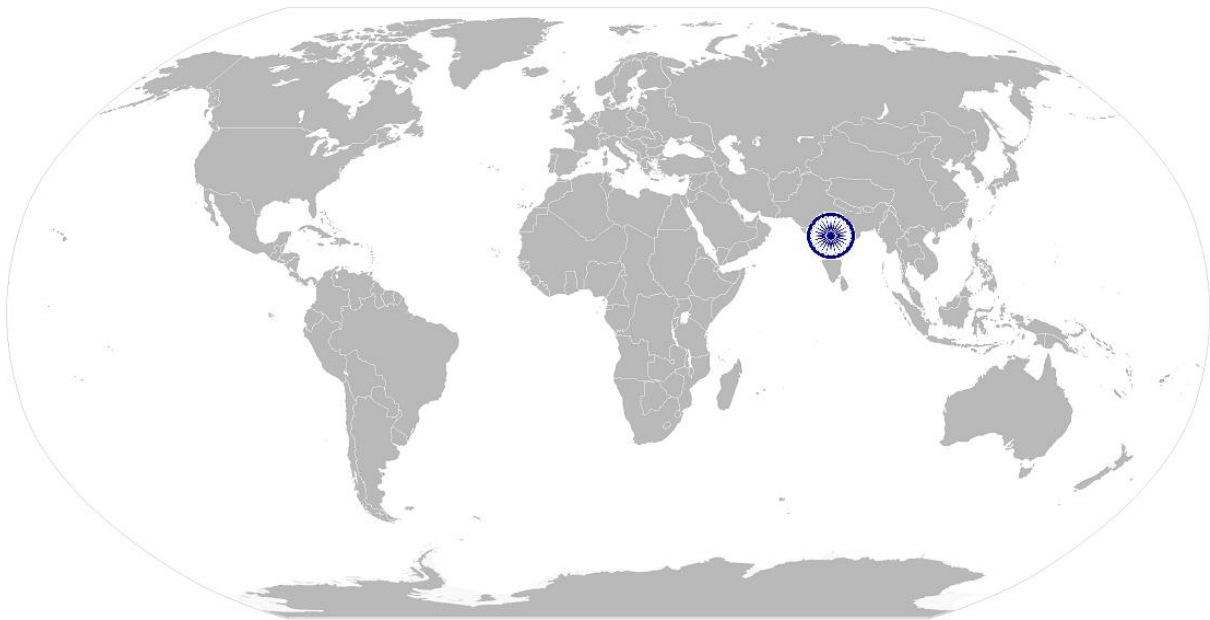
### NOS Version Control

NOS Code	PSC /N0109		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14





# National Occupational Standard



## **Overview**

This unit is about co-ordinating and liaising with client, design consultants, contractors and subcontractors and others working in a plumbing project.



## PSC/N0121 Co-ordinating with client, consultants, subcontractors, supervisors and others

<b>Unit Code</b>	<b>PSC/N0121</b>
<b>Unit Title (Task)</b>	<b>Co-ordinating with client, consultants, subcontractors, supervisors and others</b>
<b>Description</b>	This OS unit is about co-ordinating and liaising with client, design consultants, contractors and sub-contractors and others working in a plumbing project
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Co-ordination and liaising</p> <ul style="list-style-type: none"> <li>liaising with any consultants, subcontractors, supervisors, planners, quantity surveyors and the general workforce involved in the project</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Co-ordination and liaising</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. coordinate with client / consultant's representatives for any site instructions and inspection of works</p> <p>PC2. obtain overall execution strategy and communicate with representatives of working teams</p> <p>PC3. liaising with clients and their representatives (architects, engineers and surveyors), including attending regular meetings to keep them informed of progress</p> <p>PC4. discuss work instructions, raw materials and other resource requirements with representatives of working teams as well as client/reporting authority</p> <p>PC5. discuss and resolve any issue among the working teams or with the client/consultant etc.</p> <p>PC6. communicate any potential hazards and expected process disruptions</p> <p>PC7. handover completed task to reporting authority</p> <p>PC8. receive and communicate feedback among teams as and when applicable</p> <p>PC9. liaising with the local authority where ever applicable</p> <p>PC10. identify and resolve any unexpected technical difficulties and other problems that may arise</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: preferred language of communication, quality delivery standards, resolving conflicts and personnel management</p> <p>KA2. reporting structure and hierarchy</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. effective ways of communication</p> <p>KB2. building team co-ordination</p>



**PSC/N0121 Co-ordinating with client, consultants, subcontractors, supervisors and others**

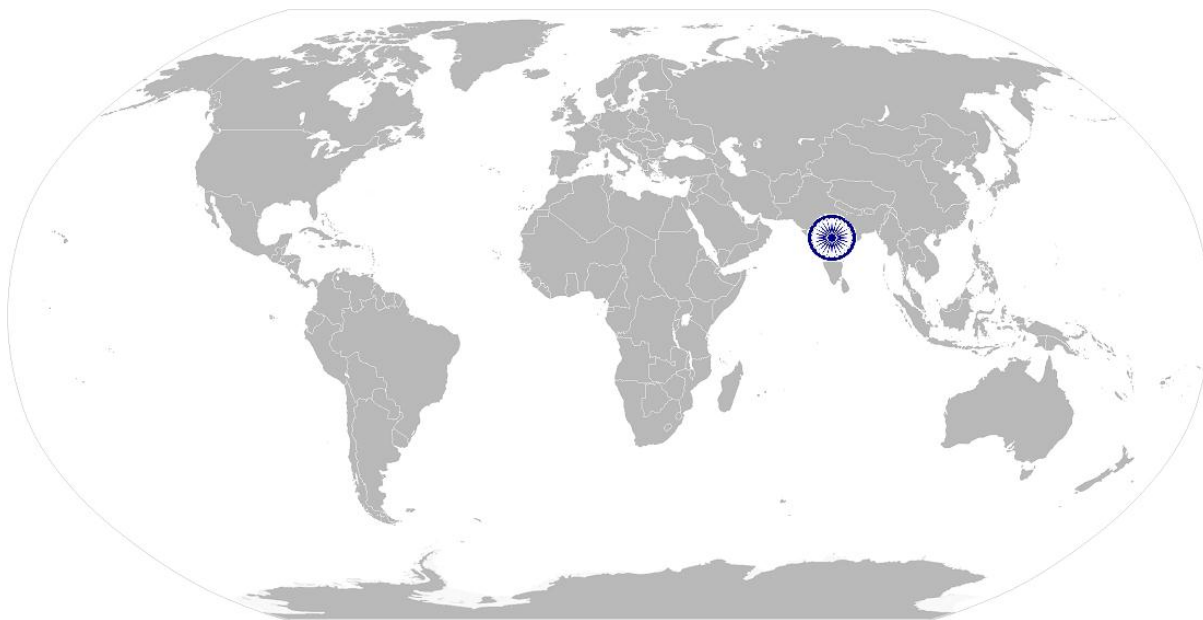
	KB3. project management terminologies KB4. standard operating procedures for reporting, meetings and other co-ordination related activities
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	The user/individual on the job needs to know and understand how to: SA1. read, write and speak in Hindi, English and/or regional language
	<b>Co-ordination</b>
	SA2. distribute work load as required SA3. communicate instructions and requirements correctly SA4. co-ordinate with co-workers, sub-ordinates and superiors
<b>B. Professional Skills</b>	<b>Decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. spot and communicate potential areas of disruptions to work process and report the same SB2. and when to report to superior and when to deal with a colleague/sub-ordinate individually, depending on the type of concern
	<b>Reflective thinking</b>
	SB3. improve work processes by interacting with others and adopting best practices SB4. resolve issues with minimal change in work plan and deviation from the objective
	<b>Liaising</b>
	SB5. liaison with all the concerned stakeholders and reach a consensus regarding any issue on the work site



**PSC/N0121 Co-ordinating with client, consultants, subcontractors, supervisors and others**

## **NOS Version Control**

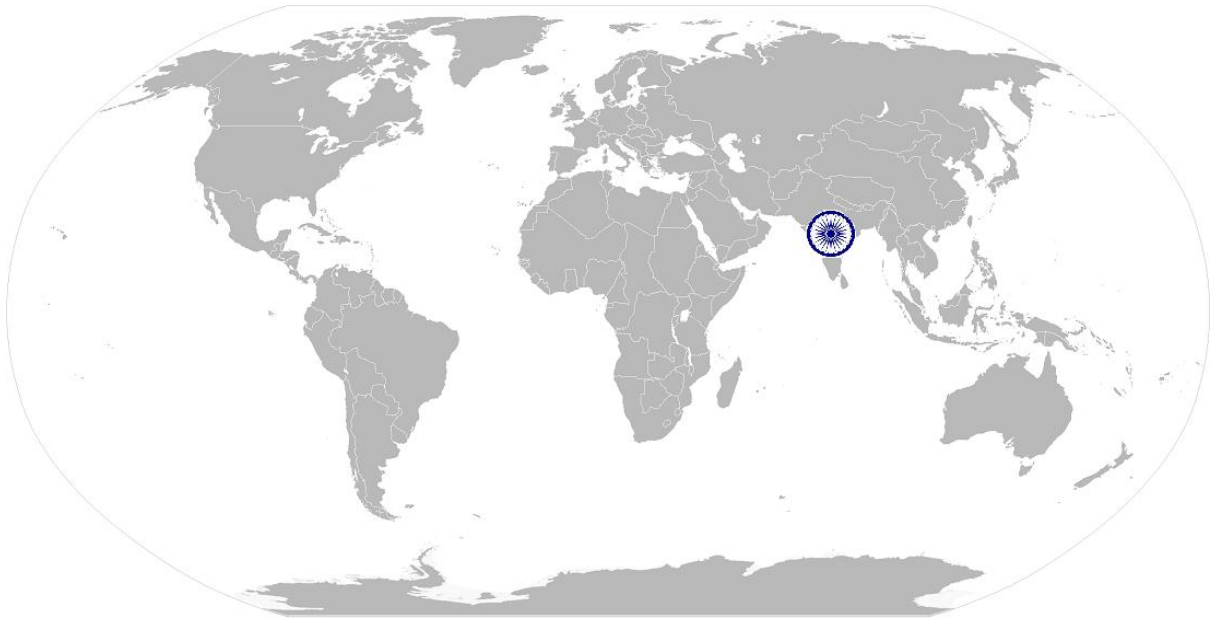
NOS Code	PSC /N0121		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14







# National Occupational Standard



## **Overview**

This unit is about preparing reports and maintaining logs related to execution and resources in terms of day-to-day usage, procurement and its management.



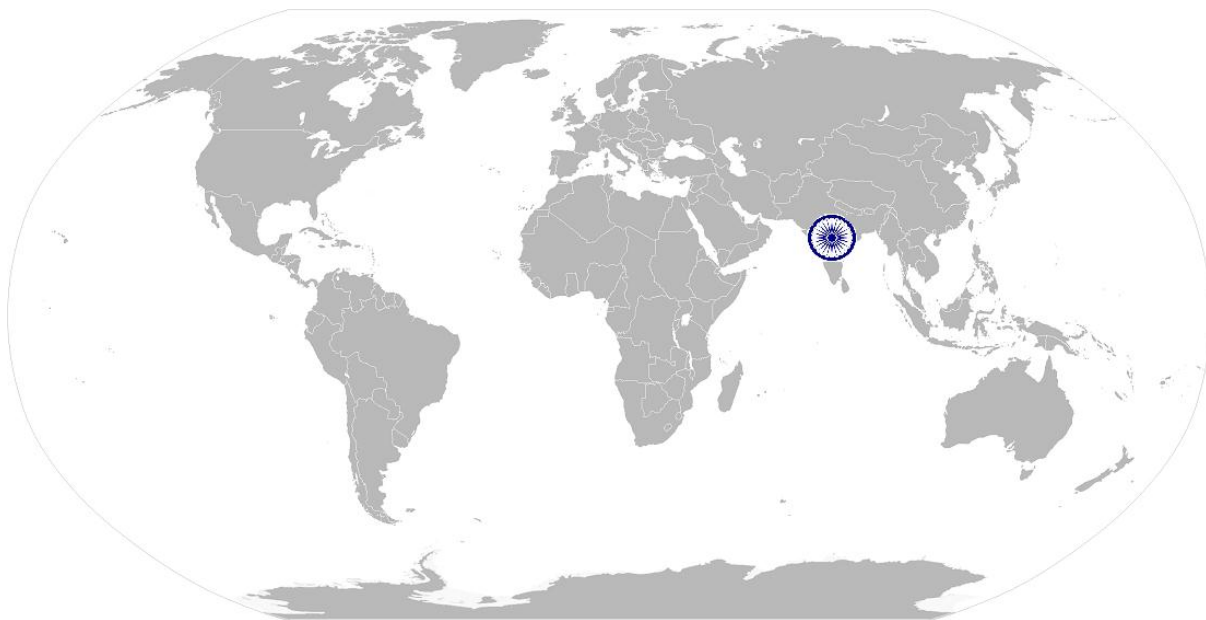
## PSC/N0122 Preparing reports and logs as required

<b>Unit Code</b>	<b>PSC/N0122</b>
<b>Unit Title (Task)</b>	<b>Preparing reports and logs as required</b>
<b>Description</b>	This OS unit is about preparing reports and maintaining logs related to execution and resources in terms of day-to-day usage, procurement and its management
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Documentation</p> <ul style="list-style-type: none"> <li>maintaining logs and preparing reports related to day-to-day execution and planning of work and resources</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Documentation</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. daily report about progress, non-compliance, delay in work to the project manager/reporting authority</p> <p>PC2. assist in other necessary project documentation</p> <p>PC3. support in finalization of budgets, billing break ups, bill certification etc.</p> <p>PC4. conduct site meetings and circulate minutes of meetings</p> <p>PC5. circulate quality standard reports and manuals</p> <p>PC6. prepare site reports and status reports on fixed intervals as and when required</p> <p>PC7. prepare and submit inspection report requests, estimates and all applicable monitoring reports on regular basis or as required</p> <p>PC8. maintain logs of material procurement and usage</p> <p>PC9. maintain logs of tools and equipment</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: preferred language of communication, reporting formats and log keeping protocols</p> <p>KA2. reporting structure and hierarchy</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. project management terminologies</p> <p>KB2. standard formats for preparation of logs and reports</p> <p>KB3. basic quantitative estimation techniques</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<p><b>Communications skills</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. read, write and speak in Hindi, English and/or regional language</p> <p>SA2. write reports in logical and easy to understand formats</p>



## PSC/N0122 Preparing reports and logs as required

B. Professional Skills	Documentation
	<p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"><li>SB1. maintain logs in a sequential and logical manner</li><li>SB2. prepare reports as required</li><li>SB3. prepare estimates of material and other resources</li></ul>

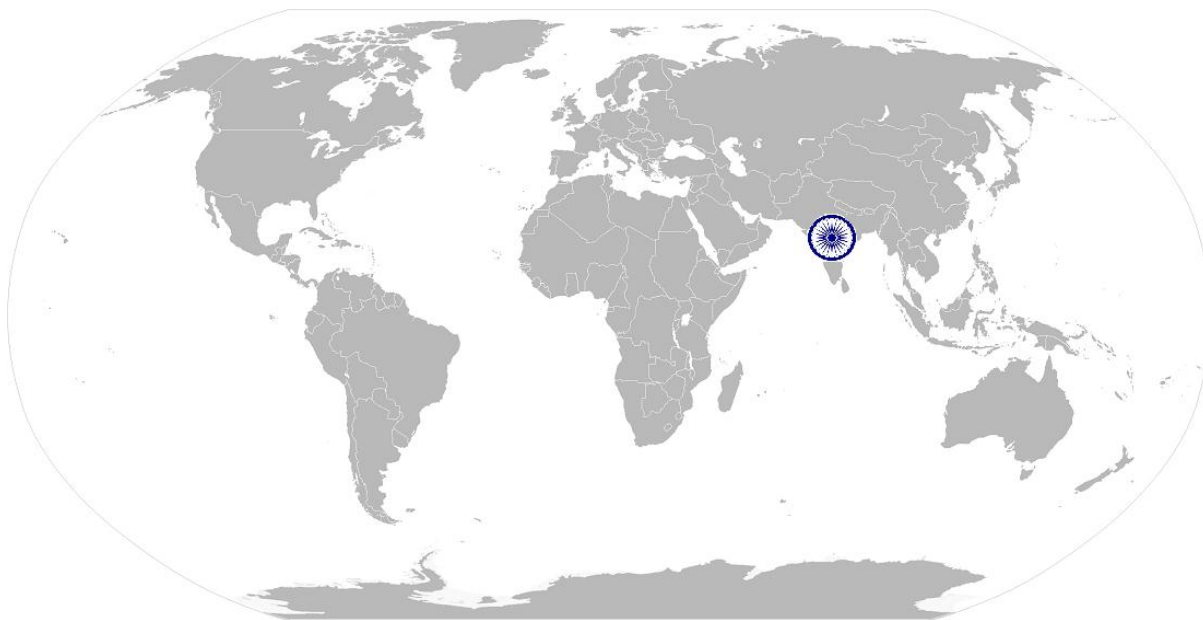




**PSC/N0122 Preparing reports and logs as required**

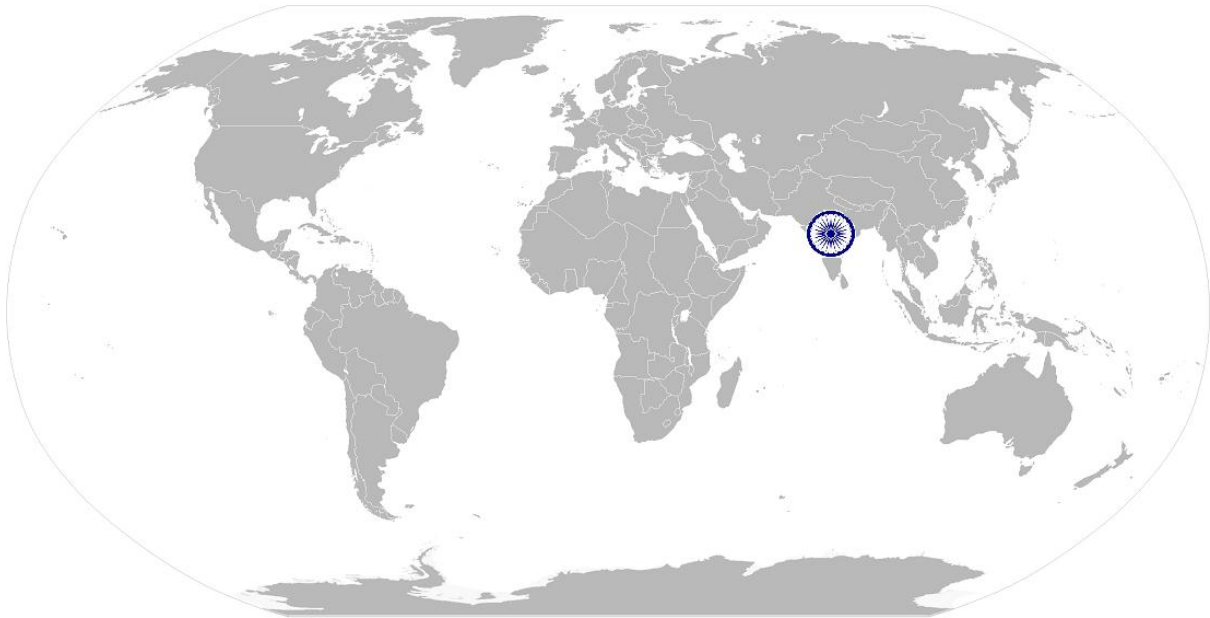
## **NOS Version Control**

NOS Code	PSC /N0122		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14





# National Occupational Standard



## **Overview**

This unit is about estimating and keeping track of quantity and associated costs of materials required for the plumbing project.



## PSC/N0123 Quantity survey and costs estimation in a plumbing project

<b>Unit Code</b>	<b>PSC/N0123</b>
<b>Unit Title (Task)</b>	<b>Quantity survey and costs estimation in a plumbing project</b>
<b>Description</b>	This OS unit is about estimating and keeping track of quantity and associated costs of materials required for the plumbing project
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Estimation</p> <ul style="list-style-type: none"> <li>estimating and reporting quantities and costs of materials that would be required for the plumbing project/task</li> <li>estimating and setting of project budget targets</li> </ul> <p>Monitoring</p> <ul style="list-style-type: none"> <li>keeping track of quantities and costs of materials during execution of the project</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Estimation</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. determine costs for various types of materials used in plumbing projects</p> <p>PC2. prepare bills of quantities with the help of architect/ design consultant/ client for the plumbing project</p> <p>PC3. undertake costs analysis for repair and maintenance work related to plumbing</p> <p>PC4. assist in establishing a client's requirements and undertake feasibility studies</p> <p>PC5. assist in preparation and adherence to project purchasing targets</p>
<b>Monitoring</b>	<p>PC6. establish the sequence of quantity survey for materials consumed</p> <p>PC7. calculate amount of materials consumed and associated costs incurred</p> <p>PC8. establish, communicate and arrange for further requirement of materials for remaining tasks</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b>	<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.</p> <p>KA2. importance of the individual's role in the work flow</p> <p>KA3. risk and impact of not following defined procedures/ instructions</p> <p>KA4. how to handover/ takeover of the work area as per instructions</p>



**PSC/N0123 Quantity survey and costs estimation in a plumbing project**

<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. requirement of materials for various plumbing tasks</p> <p>KB2. various types materials that are used in plumbing projects</p> <p>KB3. prevailing market rates of the material used/to be used</p> <p>KB4. basic terminologies used in cost estimation</p> <p>KB5. units of measurements</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. read, write and speak in Hindi, English and/or regional language</p> <p>SA2. write and read mails related to quotations on materials</p> <p>SA3. maintain good relationship with the manufacturers of different plumbing products</p>
	<b>Teamwork and coordination</b>
	<p>SA4. accept and interpret instructions and requirements from client correctly</p> <p>SA5. co-ordinate with co-workers and sub-ordinates</p>
<b>B. Professional Skills</b>	<b>Use of tools or software packages</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. use tools such as use Microsoft Office and Microsoft Project</p>
	<b>Estimation and reporting techniques</b>
	<p>SB2. carry out quantity survey and estimate quantities of materials</p> <p>SB3. get quotations from manufacturers of different plumbing products</p> <p>SB4. establish and communicate further requirement of materials for the plumbing tasks</p> <p>SB5. prepare reports on quantity and cost estimates</p>

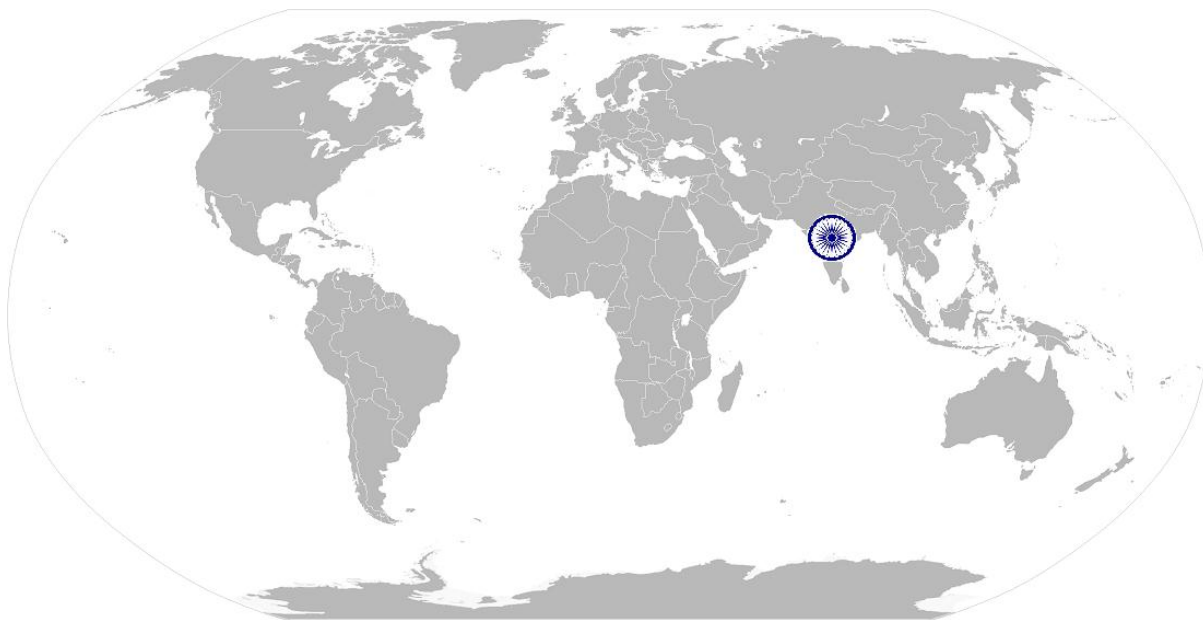




## PSC/N0123 Quantity survey and costs estimation in a plumbing project

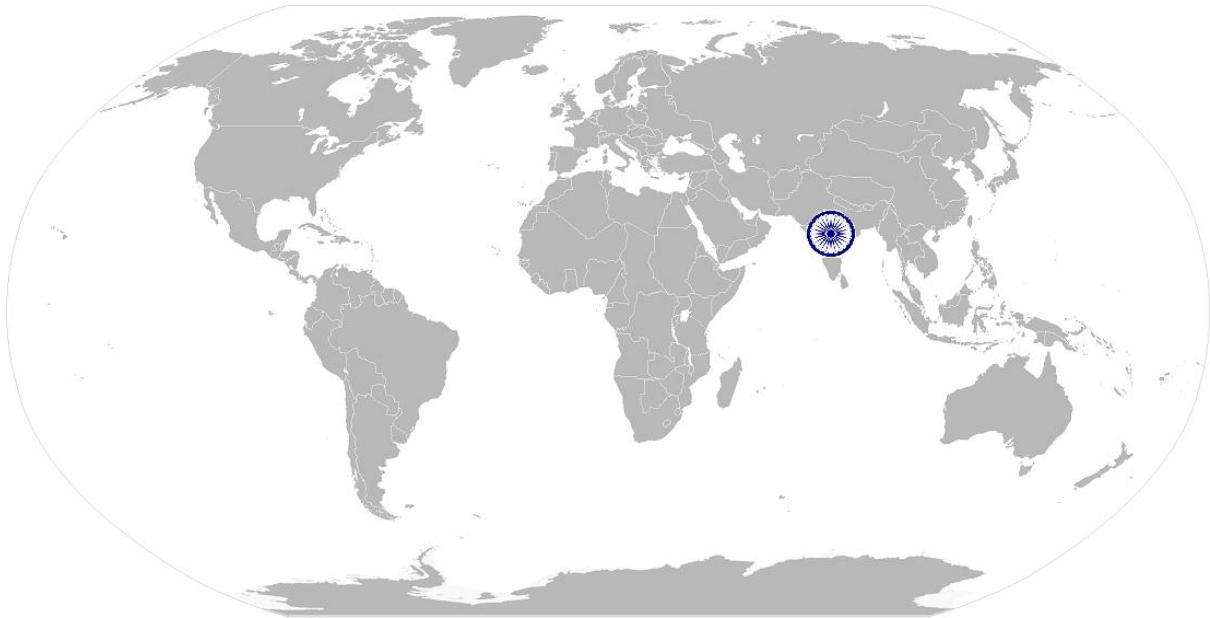
### NOS Version Control

NOS Code	PSC/N0123		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	01/09/13
Industry Sub-sector	Contractors	Last reviewed on	30/10/13
		Next review date	30/04/14





# National Occupational Standard



## **Overview**

This unit is about attaining compliance in plumbing projects by following applicable codes and regulations and completing documentation.



## PSC/N0124 Compliance with applicable codes and regulations in plumbing projects

Unit Code	PSC/N0124
Unit Title (Task)	Compliance with applicable codes and regulations in plumbing projects
Description	This OS unit is about attaining compliance in plumbing projects by following applicable codes and regulations and completing documentation
Scope	<p>This unit/task covers the following:</p> <p>Design review and co-ordination</p> <ul style="list-style-type: none"> <li>prevention of potential compliance issues by collaborating with engineering planning and design teams and review of designs</li> </ul> <p>Compliance adherence</p> <ul style="list-style-type: none"> <li>ensure adherence to applicable codes and regulations during execution stages in all plumbing related tasks/activities</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Design review and co-ordination	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. keep updated with applicable regulatory and industry compliance standards and codes</p> <p>PC2. co-ordinate with design and consultant teams for compliance related issues</p> <p>PC3. identify any non-conformances to compliance requirements for the work/task to begin</p> <p>PC4. identify potential compliance issues</p>
Compliance adherence	<p>PC5. develop compliance policies and plans to be followed by the team</p> <p>PC6. organize compliance trainings and prepare timetables and cost estimates</p> <p>PC7. complete approval applications for compliance task</p> <p>PC8. record test results and prepare investigation reports</p> <p>PC9. prepare and file declarations of conformity</p> <p>PC10. maintain compliance database</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: compliance standards, safety and hazards, integrity, dress code, etc.</p> <p>KA2. risk and impact of not following defined procedures</p> <p>KA3. general procedures for checking of compliance with applicable codes and regulations</p>
B. Technical Knowledge	<p>KB1. existing codes and regulations relevant to plumbing industry in detail</p> <p>KB2. basic plumbing and design terminologies</p> <p>KB3. basic code compliance terminologies</p>



**PSC/N0124 Compliance with applicable codes and regulations in plumbing projects**

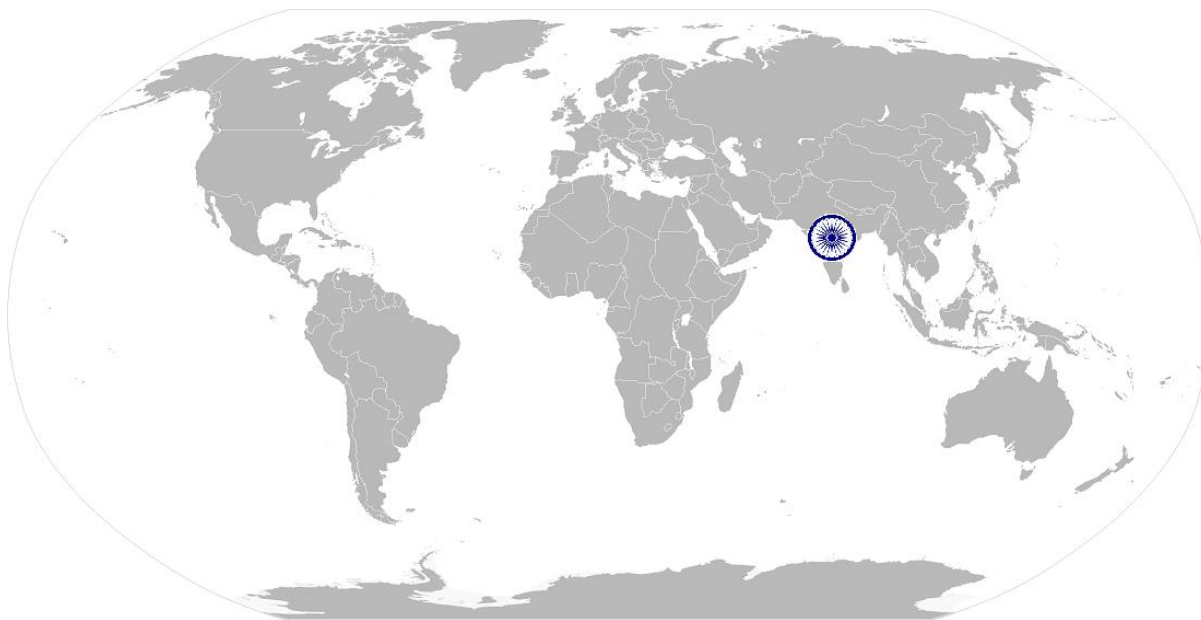
	<p>KB4. typical issues that can arise on any non-compliance to codes and regulations</p> <p>KB5. methodology to resolve any non-compliance issue</p> <p>KB6. units of measurement</p> <p>KB7. material disposal procedure and its importance</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. read, write and speak well in Hindi, English and/or regional language</p> <p>SA2. follow protocols for approvals and inspections</p>
<b>B. Professional Skills</b>	<b>Review and co-ordination</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. review designs and plans to ensure compliance with codes and regulations</p> <p>SB2. co-ordinate with design and consultant teams in the planning phase to ensure compliance</p> <p>SB3. spot signs of deviation from specifications and communicate to the reporting authority</p>
	<b>Compliance</b>
	<p>SB4. instruct and enquire supervisors, design engineer, etc. related to compliance check</p> <p>SB5. ensure compliance at work-in-progress stage</p> <p>SB6. check for codes and regulation compliance parameters in the completed tasks</p> <p>SB7. learn from past errors</p>



## PSC/N0124 Compliance with applicable codes and regulations in plumbing projects

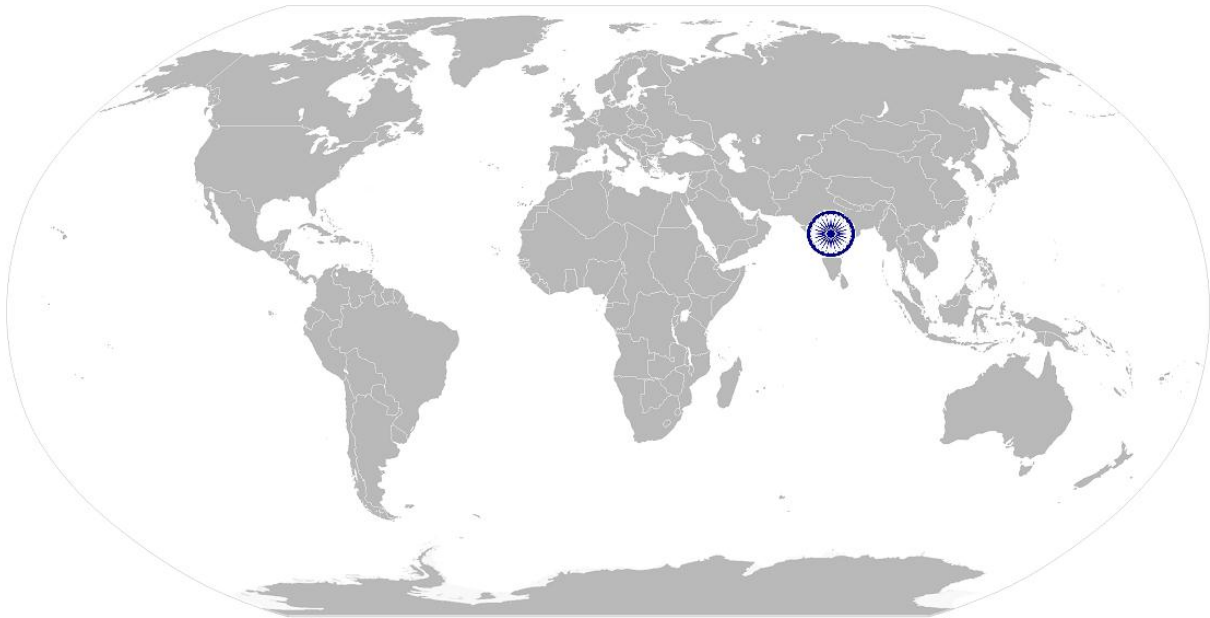
### NOS Version Control

NOS Code	PSC/N0124		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14





# National Occupational Standard



## **Overview**

This unit is about commissioning of plumbing systems upon completion of project in housing, commercial and institutional set ups.



## PSC/N0125 Commissioning of plumbing system

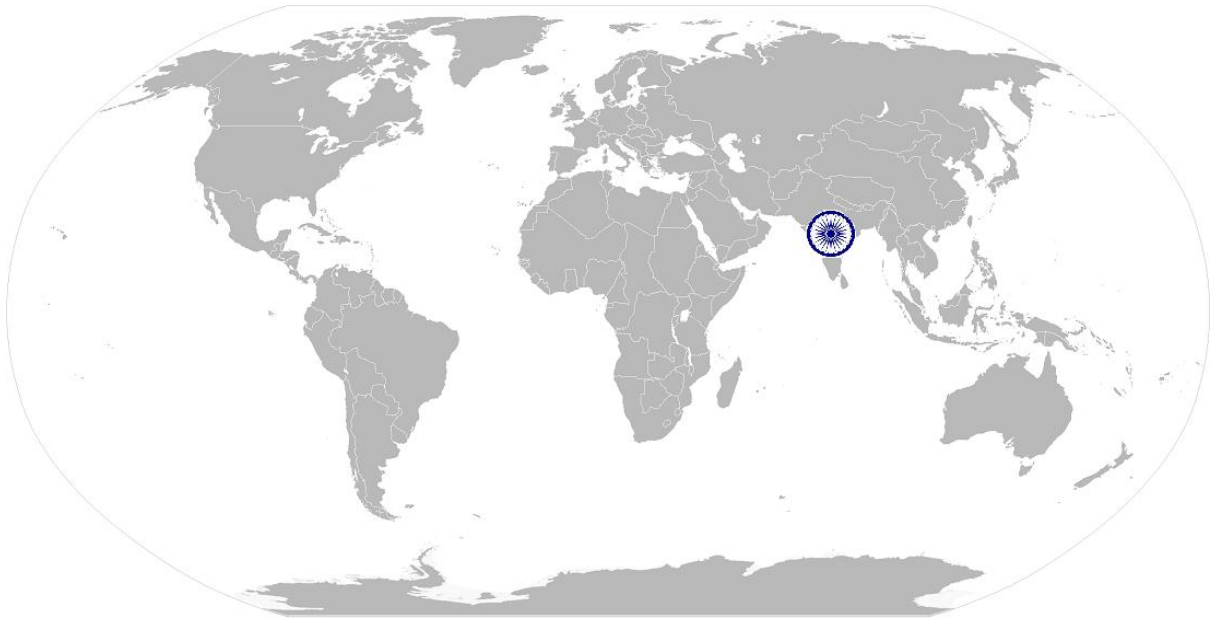
Unit Code	PSC/N0125
Unit Title (Task)	Commissioning of plumbing system
Description	This OS unit is about commissioning of plumbing systems upon completion of project in housing, commercial and institutional set ups
Scope	<p>This unit/task covers the following:</p> <p>Commissioning exercise</p> <ul style="list-style-type: none"> <li>• basic quality check of the installed fittings and fixtures</li> <li>• testing, commissioning and handover activities</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Commissioning exercise	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. test the joints for any leakages and/or damages</p> <p>PC2. check the pressure and characteristic of water flow in just installed system</p> <p>PC3. identify and rectify any anomalies which arise during commissioning exercise</p> <p>PC4. guide the plumbing team in conducting the commissioning exercise</p>
Knowledge and Understanding (K)	
<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. company's policies on: compliance standards, safety and hazards, integrity, dress code, etc.</p> <p>KA2. risk and impact of not following defined procedures</p> <p>KA3. general procedures for checking of compliance with applicable codes and regulations</p>
<b>B. Technical Knowledge</b>	<p>KB1. basic plumbing terminologies</p> <p>KB2. required pressure, flow and temperature of water at different outlets</p> <p>KB3. typical issues or faults that can arise during commissioning exercise</p> <p>KB4. methodology to rectify the issues that can arise during commissioning exercise</p> <p>KB5. units of measurement</p> <p>KB6. material disposal procedure and its importance</p>
Skills (S)	
<b>A. Core Skills/ Generic Skills</b>	<b>Communication skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. read, write and speak well in Hindi, English and/or regional language</p> <p>SA2. follow protocols for approvals regarding conducting of commissioning exercise</p>
<b>B. Professional Skills</b>	<b>Co-ordination</b>





**PSC/N0125 Commissioning of plumbing system**

	The user/individual on the job needs to know and understand how to:
	SB1. co-ordinate with the entire plumbing team during commissioning exercise
	<b>Commissioning</b>
	SB2. enquire supervisors, design engineer, etc. related to compliance check and commissioning exercise SB3. spot signs of deviation from expected end requirements and rectify the defects in the system without much modification SB4. learn from past errors

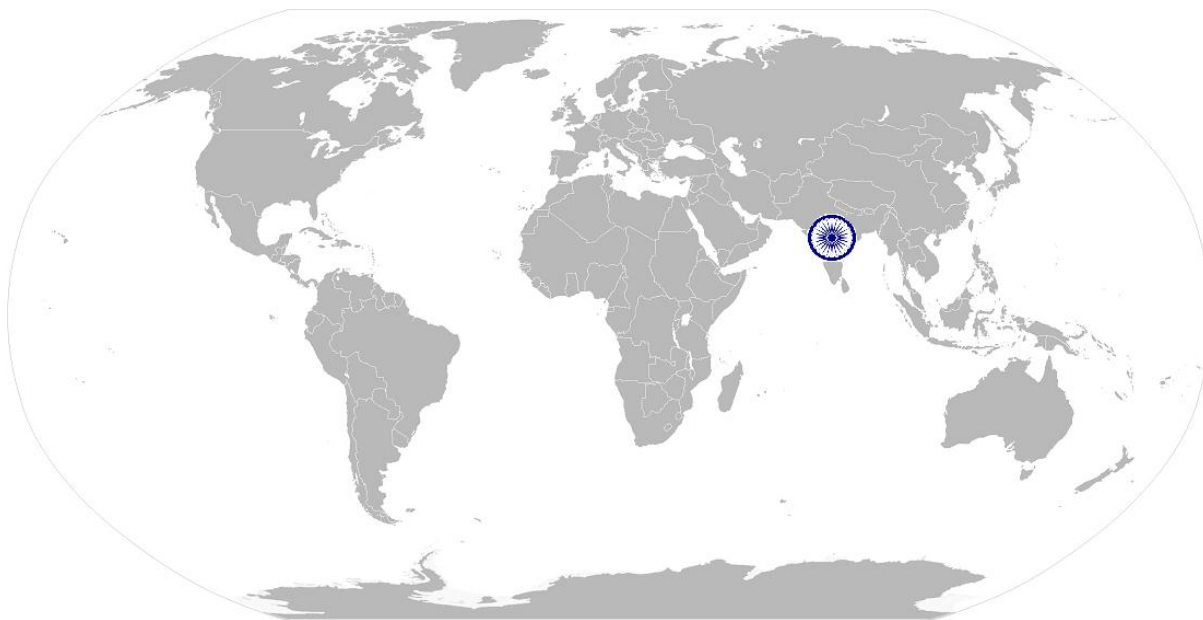




## PSC/N0125 Commissioning of plumbing system

### NOS Version Control

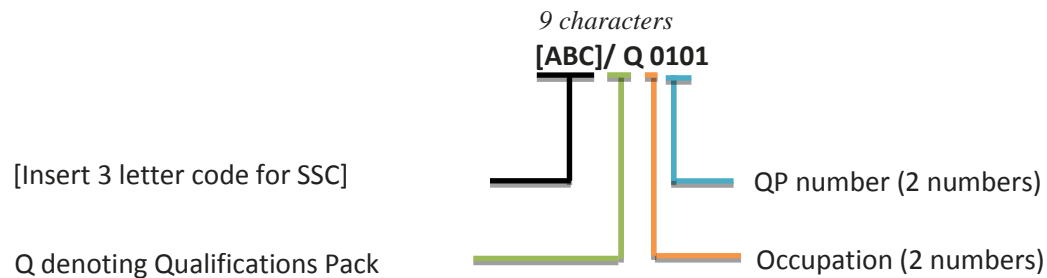
NOS Code	PSC/N0125		
Credits(NVEQF/NVQF/NSQF) [OPTIONAL]	TBD	Version number	0.1
Industry	Plumbing	Drafted on	15/07/13
Industry Sub-sector	Contractors	Last reviewed on	30/07/13
		Next review date	31/01/14



## Annexure

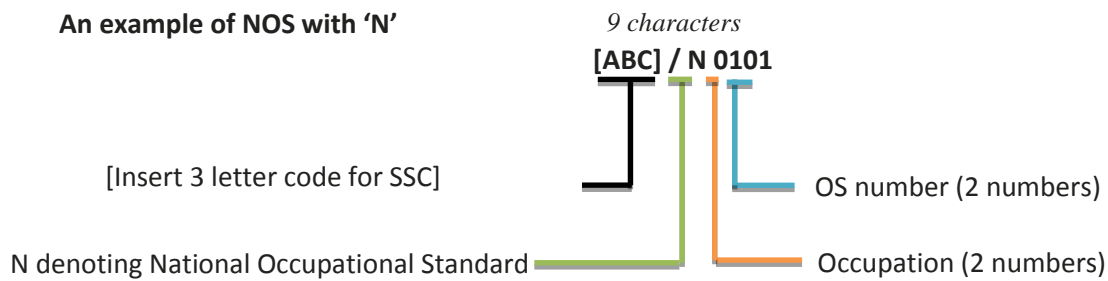
### Nomenclature for QP and NOS

#### Qualifications Pack



#### Occupational Standard

##### An example of NOS with 'N'



The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
<b>Contractors</b>	01-10
<b>Consultants</b>	11-20
<b>Manufacturers</b>	21-30

Sequence	Description	Example
<b>Three letters</b>	Industry name	PSC
<b>Slash</b>	/	/
<b>Next letter</b>	Whether QP or NOS	N
<b>Next two numbers</b>	Occupation code	01
<b>Next two numbers</b>	OS number	01