



# QUALIFICATION PACK - OCCUPATIONAL STANDARDS FOR STRATEGIC MANUFACTURING INDUSTRY



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## 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 - Lagger Insulator

**SECTOR:** STRATEGIC MANUFACTURING

**SUB-SECTOR:** Ship Building & Ship Repair

**OCCUPATION:** Application, Repair & Maintenance

**REFERENCE ID:** SMC/Q 3601

**ALIGNED TO:** NCO-2015/NIL, ISCO – NIL

**Brief Job Description:** Lagger insulator assists in applying insulation on pipes, ducts, valves, fittings, flanges, boilers, tanks, turbines, evaporators refrigerating units, bulkheads and compartments of ship structures under supervision, in order to control heat loss or gain and provide personnel and frost protection.

**Personal Attributes:** The individual has to organize own work which may be routine or repetitive in nature. He should have basic communication (written and oral) and arithmetic skills. Also, understanding the initiative to improve efficiency and effectiveness in work.



Qualifications Pack for Lager insulator

Job Details

<b>Qualifications Pack Code</b>	<b>SMC/Q 3601</b>		
<b>Job Role</b>	<b>Lager Insulator</b>		
<b>Credits (NSQF)</b>	TBD	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	Strategic Manufacturing	<b>Drafted on</b>	<b>05/11/2016</b>
<b>Sub-sector</b>	Ship Building and Ship Repair	<b>Last reviewed on</b>	<b>13/09/2017</b>
<b>Occupation</b>	Application, Repair & Maintenance	<b>Next review date</b>	<b>12/09/2020</b>
<b>NSQC Clearance on</b>	<b>NA</b>		

<b>Job Role</b>	<b>Lager insulator</b>
<b>Role Description</b>	Lager insulator assists in applying insulation on pipes, ducts, valves, fittings, flanges, boilers, tanks, turbines, evaporators refrigerating units, bulkheads and compartments of ship structures under supervision, in order to control heat loss or gain and provide personnel and frost protection.
<b>NSQF level</b>	3
<b>Minimum Educational Qualification</b>	10 <sup>th</sup> Standard
<b>Maximum Educational Qualification</b>	N/A
<b>Prerequisite License or Training</b>	N/A
<b>Minimum Job Entry Age</b>	18 years
<b>Experience</b>	No previous experience is required
<b>Applicable National Occupational Standards (NOS)</b>	<p><b>Compulsory NOS:</b></p> <ol style="list-style-type: none"> <li><a href="#">SMC/N 3601 Carry out marine insulation operations</a></li> <li><a href="#">SMC/N 3602 Removal &amp; Repair of marine insulation</a></li> <li><a href="#">SMC/N 9103 Work effectively in a collaborative environment</a></li> <li><a href="#">SMC/N 9104 Maintain safe, hygienic and secure environment</a></li> </ol>
<b>Performance Criteria</b>	As described in the relevant OS units



## Qualifications Pack for Lagger insulator

### Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interest. 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 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 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.



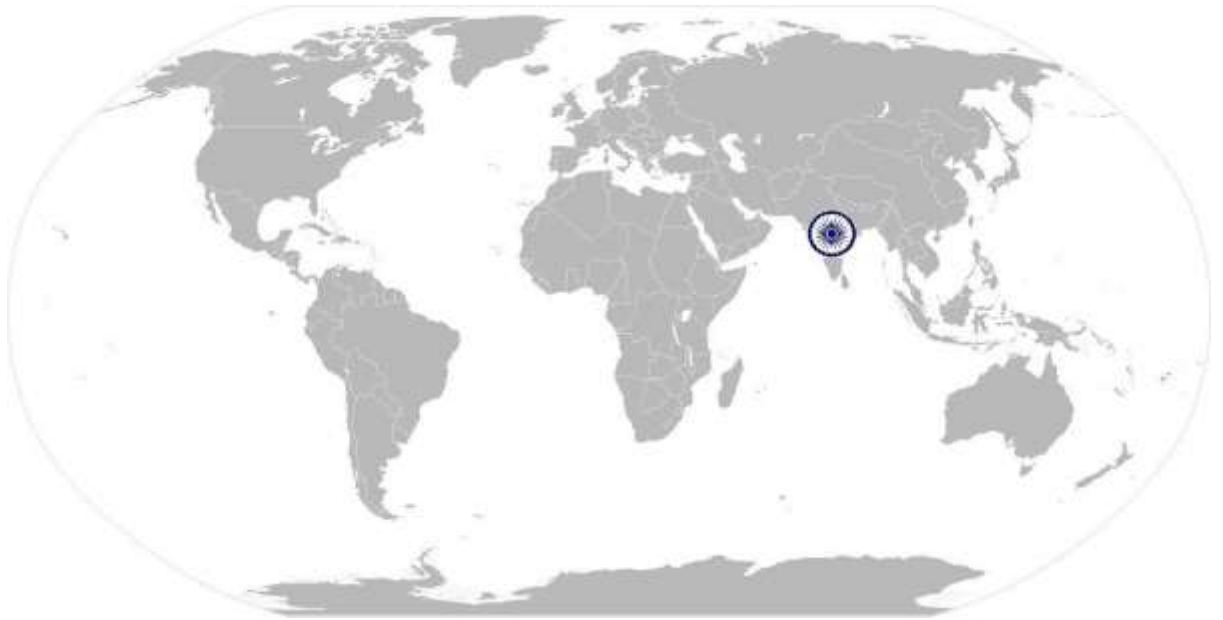
## Qualifications Pack for Lagger insulator

### Definitions

Keywords /Terms	Description
SMSSC	Strategic Manufacturing Sector Skill 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



# National Occupational Standard



## Overview

This unit is about carrying out marine insulation operations.



SMC/N 3601

Carry out marine insulation operations

National Occupational Standard

<b>Unit Code</b>	<b>SMC/N 3601</b>
<b>Unit Title (Task)</b>	<b>Carry out marine insulation operations</b>
<b>Description</b>	This unit is about carrying out marine insulation on ship in accordance to Work Plan Instructions (WPI)
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Lagging insulation</li> <li>• Acoustic insulation</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Lagging insulation</b>	To be competent, the individual must be able to: <ul style="list-style-type: none"> <li>PC1. form sections of insulation in a shape and size to fit system and component</li> <li>PC2. cut out irregular shape lagging insulation for valves, fittings, flanges, and similar parts</li> <li>PC3. secure insulation in place with wire, metal straps, or cement</li> <li>PC4. cut and fit fiberglass cloth or other fabric, wrap it over insulation</li> <li>PC5. sew the seams and joints using special tie line, needle, and sail maker palm</li> <li>PC6. fix insulation in the living, command and engineering areas of a ship with the aim to prevent loss or increase of heat</li> <li>PC7. paint the insulation lagging with suitable fire retardant paint</li> </ul>
<b>Acoustic insulation</b>	To be competent, the individual must be able to: <ul style="list-style-type: none"> <li>PC8. fix sound and acoustic insulation for noise filtering of machinery compartments and living spaces</li> <li>PC9. make insulated panels for hull and internal structures and fix it with studs and fixtures</li> <li>PC10. fix pre-fabricated insulated panels on ship's structures</li> <li>PC11. fabricate molded sections of acoustic insulation for special applications of sound dampening</li> <li>PC12. measure fabrication of acoustic insulation portable pads used in conjunction with various components on board ship</li> <li>PC13. fill blower hoppers with acoustic insulation and prepare surfaces for installation</li> <li>PC14. paint the acoustic insulation lagging with suitable fire retardant paint</li> </ul>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	The individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KA1. procedures followed in the company relevant to own employment and performance conditions</li> <li>KA2. relevant occupational health and safety requirements applicable in the work place</li> <li>KA3. importance of working in clean and safe environment</li> <li>KA4. own job role and responsibilities</li> <li>KA5. reporting structure, inter-dependent functions, lines and procedures in the work area</li> </ul>



SMC/N 3601

Carry out marine insulation operations

<p><b>B. Technical Knowledge</b></p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to interpret metric systems, work-piece reference points</p> <p>KB2. how to prepare the pipes/metal sheets/deck fittings in readiness for insulation activities</p> <p>KB3. knowledge of acoustic insulation, units of measurement and noise levels</p> <p>KB4. understanding of concept of thermal and acoustic insulation</p> <p>KB5. knowledge of irregular shape lagging insulation for valves, fittings, flanges, and similar parts</p> <p>KB6. familiarity with hollow deck, superstructure and engineering spaces to ascertain type of insulation and procedures for fitting it with knives, saws or other tools</p> <p>KB7. understanding of molded insulation which includes calcium silicate, temp mat and finishing cement to various size of piping systems</p> <p>KB8. knowledge of types of compression fittings; material required to seal the pipes/metal sheets/deck fittings</p> <p>KB9. the importance of leaving the work area and equipment in a safe and clean condition on completion of insulation</p> <p>KB10. how to fill up the reports, checklists and complete documentation</p>
<p><b>Skills (S)</b></p>	
<p><b>A. Core Skills/ Generic Skills</b></p>	<p><b>Writing Skills</b></p> <p>The individual on the job needs to know and understand how to:</p> <p>SA1. prepare and maintain documentation</p> <p><b>Reading Skills</b></p> <p>The individual on the job needs to know and understand how to:</p> <p>SA2. read vernacular/english language</p> <p>SA3. read and understand instructions, health and safety regulations</p> <p>SA4. read and interpret basic information correctly from job specifications</p> <p>SA5. read various colour codes, as per standard electrical, mechanical and civil nomenclature</p> <p><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The individual on the job needs to know and understand how to:</p> <p>SA6. express statements or information clearly</p> <p>SA7. participate in and understand the main points of simple discussions</p> <p>SA8. communicate with peers and superiors</p> <p>SA9. ask questions for better understanding</p>
<p><b>B. Professional Skills</b></p>	<p><b>Team work</b></p> <p>The individual on the job needs to know and understand how to:</p> <p>SB1. organize work schedule to meet deadlines</p> <p>SB2. work constructively and collaboratively with others</p>

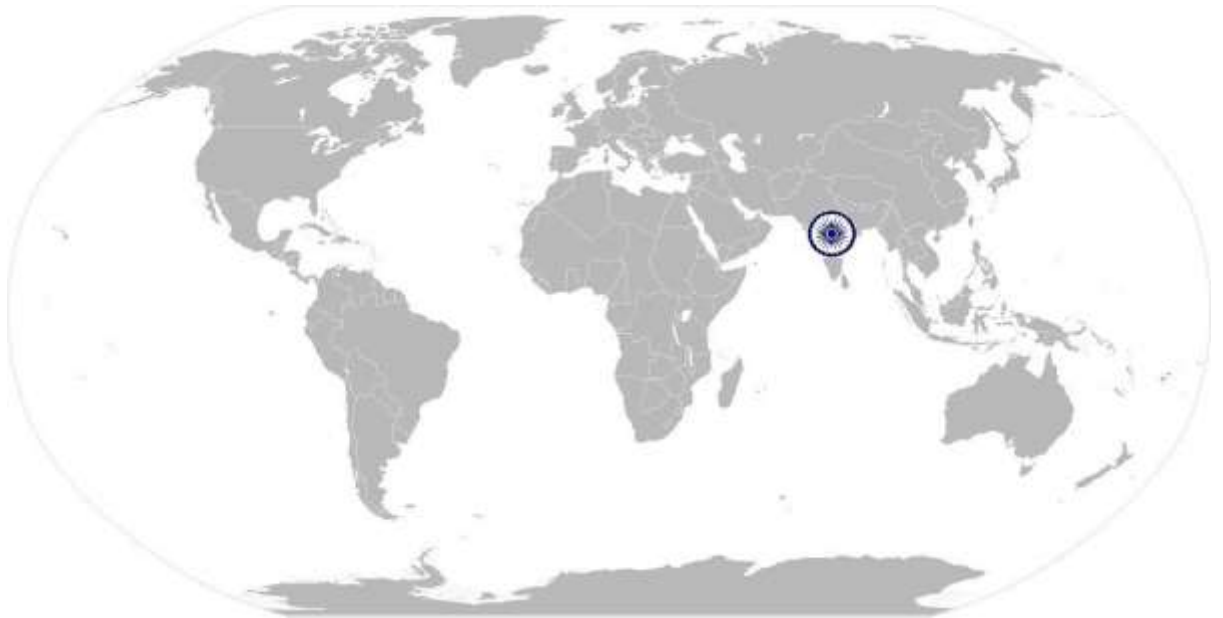


SMC/N 3601

Carry out marine insulation operations

## NOS Version Control

NOS Code	SMC/N 3601		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Ship Building & Ship Repair	Last reviewed on	13/09/2017
Occupation	Application, Repair & Maintenance	Next review date	12/09/2020



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# National Occupational Standard



## Overview

This unit is about removing and repairing of marine insulation.



SMC/N 3602

Removal & Repair of marine insulation

National Occupational Standard

<b>Unit Code</b>	<b>SMC/N 3602</b>
<b>Unit Title (Task)</b>	<b>Removal &amp; repair of marine insulation</b>
<b>Description</b>	This unit is about insulation removal and repair under guidance
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Insulation removal and repair under guidance</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Insulation removal and repair under guidance</b>	To be competent, the individual must be able to: <ul style="list-style-type: none"> <li>PC1. remove molded insulation on various size piping systems</li> <li>PC2. repair insulation on various components/parts</li> <li>PC3. apply fiberglass cloth over repaired sections smoothly</li> <li>PC4. prepare insulation material, marking and cutting of damaged insulation as per work instructions</li> <li>PC5. wrap piping or glue expanded insulation into place</li> <li>PC6. finish insulated surfaces with covers, strips or other sealants to prevent damage to the insulation</li> <li>PC7. place wire or rubber coatings on ship's internal structural if damaged during insulation removal</li> <li>PC8. secure fitted insulation properly with relevant components as per the instructions</li> <li>PC9. dispose off waste material as per laid down procedures</li> </ul>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KA1. procedures followed in the company relevant to own employment and performance conditions</li> <li>KA2. relevant occupational health and safety requirements applicable in the work place</li> <li>KA3. reporting structure, inter-dependent functions, lines and procedures in the work area</li> <li>KA4. importance and purpose of documentation in context of employment and work</li> </ul>
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KB1. how to use information from engineering drawings in relation to insulation work</li> <li>KB2. knowledge of standard types of pipe fittings &amp; engineering equipment</li> <li>KB3. knowledge of various types of adhesives and sealing compounds that are used on non - metallic pipework</li> <li>KB4. knowledge of types of compression fittings; material required to seal the pipes/metal sheets/deck fittings</li> <li>KB5. knowledge of material used for cutting and their uses</li> </ul>



SMC/N 3602

Removal & Repair of marine insulation

	KB6. understanding of types of tools and equipment to check the work piece and the measuring equipment that is used KB7. how to fill up the reports and checklists
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b> The user/ individual on the job needs to know and understand how to: SA1. fill up simple checklists
	<b>Reading Skills</b> The user/individual on the job needs to know and understand how to: SA2. read vernacular/english language SA3. read and understand instructions, health and safety regulations
	<b>Oral Communication (Listening and Speaking skills)</b> The user/individual on the job needs to know and understand how to: SA4. express statements or information clearly SA5. participate in and understand the main points of simple discussions SA6. communicate with peers, superiors SA7. ask questions for better understanding
	<b>B. Professional Skills</b>
<b>Teamwork</b> The user/individual on the job needs to know and understand how to: SB1. work constructively and collaboratively with others SB2. follow organization code of conduct SB3. organize own work schedule to meet deadlines	



SMC/N 3602

Removal & Repair of marine insulation

## NOS Version Control

NOS Code	SMC/N 3602		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Ship Building & Ship Repair	Last reviewed on	13/09/2017
Occupation	Application, Repair & Maintenance	Next review date	12/09/2020



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# National Occupational Standard



## Overview

This unit covers basic practices for effective working with others at the work place, such as communication, etiquette, discipline, listening, handling conflict and grievances.



SMC/N 9103

Work effectively in a collaborative environment

National Occupational Standard	<b>Unit Code</b>	SMC / N 9103
	<b>Unit Title (Task)</b>	Work effectively in a collaborative environment
	<b>Description</b>	This unit covers basic practices for working effectively with others in a collaborative environment, such as team work and cooperation. He should have awareness of organizational goals. Share information, communicate effectively using appropriate etiquettes and behaviors, and interpersonal relations.
	<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Activities covered:</p> <ul style="list-style-type: none"> <li>• Working effectively in a team</li> <li>• Etiquette and behaviors for:             <ol style="list-style-type: none"> <li>a. understanding &amp; sharing information with others to enable efficient delivery of work</li> <li>b. communicating with other members and people internal or external to the organization</li> </ol> </li> <li>• Interpersonal relations</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>		
<b>Element</b>	<b>Performance Criteria</b>	
<b>Working effectively in a team</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. define own work and responsibilities</p> <p>PC2. understand organizational, individual and team goals</p> <p>PC3. understand work requirements</p> <p>PC4. collaborate and integrate own work with other people's work</p> <p>PC5. consult with others to achieve smooth workflow and help in maximizing effectiveness and efficiency in carrying out tasks</p> <p>PC6. identify any problems with team members and take initiative to solve problems in a positive manner</p> <p>PC7. discuss with the appropriate authority or person, any problems that arise, which may affect the work and remain unresolved</p> <p>PC8. work in a way that shows respect for others</p> <p>PC9. carry out any commitments made to others</p> <p>PC10. seek ways of improvement of work</p> <p>PC11. learn skills from others that help in performing the work efficiently and share own skills with them, which may benefit their work</p> <p>PC12. work together as a single unit to ensure efficiency in work</p>	



SMC/N 9103

**Work effectively in a collaborative environment**

<b>Etiquette and behaviors</b>	To be competent, the user/ individual must be able to: PC13. receive information and instructions accurately from the supervisor and colleagues PC14. seek clarifications where required without disruption of own or others work PC15. give feedback of work done and report problems identified in the field PC16. communicate with other people clearly and effectively PC17. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism PC18. etiquettes may include: <ul style="list-style-type: none"><li>• use appropriate titles and terms of respect</li><li>• use polite language</li><li>• avoid casual expressions</li></ul> PC19. display active listening skills while interacting with others at work and receiving feedback PC20. demonstrate responsible and disciplined behavior
<b>Interpersonal relations</b>	To be competent, the user/ individual must be able to: PC21. develop understanding, goodwill and trust with team members PC22. resolve individual disagreements with the concerned person PC23. follow the organization's policies and procedures to resolve conflicts PC24. escalate unresolved grievances to appropriate authority
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. reporting structure, inter-dependent functions, procedures in the work area KA3. effective working relationships with both internal and external people with which the individual is required to interact
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. importance of developing effective working relationships KB2. importance of building rapport through collaboration and mutual support KB3. importance of taking feedback KB4. importance of knowledge sharing for effective working KB5. importance of tone and pitch in effective communication KB6. key elements of active listening KB7. importance of avoiding casual expletives and unpleasant terms while communicating in professional circles KB8. importance of communicating clearly and effectively with people face-to-face, by telephone and in writing KB9. how to deal with difficult working relationships with people to sort out problems KB10. importance of discipline for professional success KB11. common reasons for interpersonal conflicts KB12. process of resolving interpersonal conflicts KB13. importance and ways of managing interpersonal conflict effectively



SMC/N 9103

Work effectively in a collaborative environment

	KB14. expressing and addressing grievances appropriately and effectively
<b>Skills (S)</b>	
<b>A. Generic Skills</b>	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA1. read vernacular/english language SA2. read health and safety instructions SA3. read various colour codes, as per standard electrical, mechanical and civil nomenclature
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA4. express statements or information clearly so that others can hear and understand SA5. participate in and understand the main points of simple discussions SA6. communicate with peers
<b>B. Professional Skills</b>	<b>Team Working Skills</b>
	The user/individual on the job needs to know and understand how to: SB1. work constructively and collaboratively with others SB2. build rapport and cooperative relationships with internal team members and other departments for effective completion of work
	<b>Organization Skills</b>
	The user/individual on the job needs to know and understand how to: SB3. plan and organize own work schedule to meet deadlines SB4. how to improve the work process





SMC/N 9103

Work effectively in a collaborative environment

## NOS Version Control

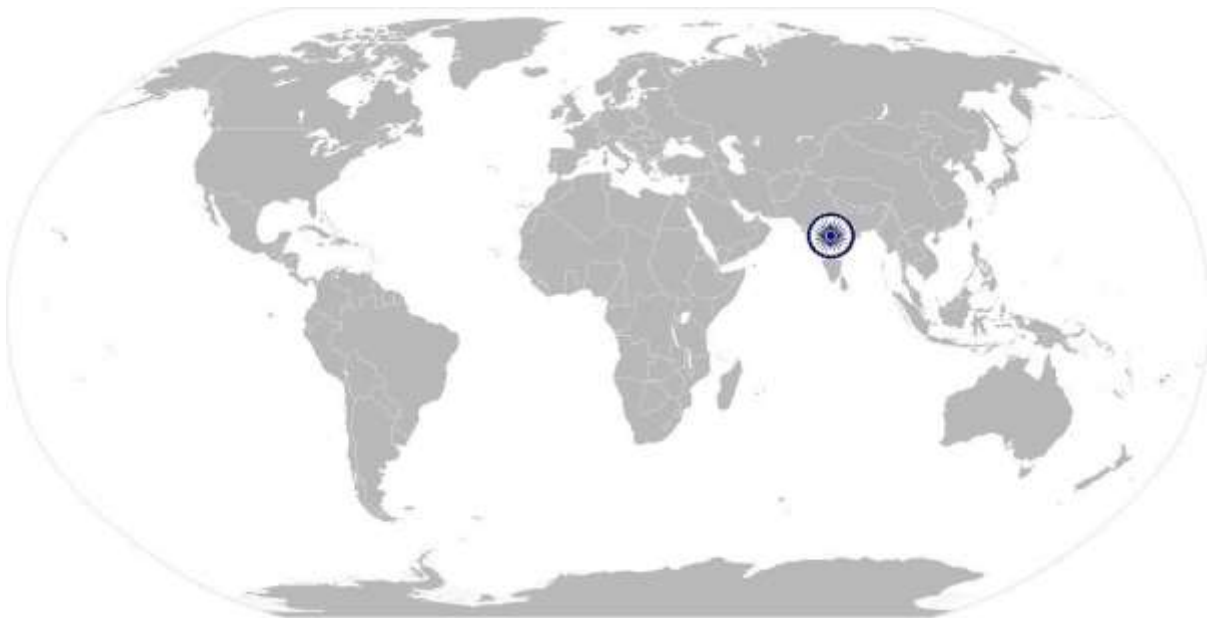
NOS Code	SMC/N 9103		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Common	Last reviewed on	13/09/2017
Occupation	Common	Next review date	12/09/2020



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# National Occupational Standard



## Overview

This unit covers procedures and practices to be followed to maintain a healthy, safe and secure work environment.



**SMC/N 9104 Maintain a healthy, safe and secure working environment**

National Occupational Standard

<b>Unit Code</b>	<b>SMC/N 9104</b>
<b>Unit Title (Task)</b>	<b>Maintain a healthy, safe and secure working environment</b>
<b>Description</b>	This unit is about maintaining a healthy, safe and secure work environment. It covers responsibilities towards self, others, assets and the environment.
<b>Scope</b>	<p>This unit/task covers the following: activities covered:</p> <ul style="list-style-type: none"> <li>• maintain healthy workplace environment</li> <li>• maintain safe and secure environment</li> <li>• fire safety</li> <li>• emergencies, rescue and first-aid procedures</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Maintain healthy workplace</b>	<p>To be competent ,the user/individual on the job must be able to:</p> <p>PC1. maintain cleanliness and hygiene PC2. wear clean and appropriate clothing, footwear and headgear PC3. follow health and hygiene procedures in all the work at all times PC4. identify common health hazards and symptoms for self related to exposure of paint fumes, oxygen – deficient atmospheres, asbestos fibers, etc</p>
<b>Maintain safe and secure environment</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC5. keep a look out for hazards in the workplace related to equipment, personal clothing, etc PC6. keep a lookout for following accommodation related safety aspects</p> <ul style="list-style-type: none"> <li>• escape routes unobstructed; exits clearly marked</li> <li>• safety signs and placards posted and clearly readable</li> <li>• life jackets, immersion suits &amp; EEEDs correctly stowed &amp; marked</li> </ul> <p>PC7. keep a lookout for the following machinery spaces related safety aspects</p> <ul style="list-style-type: none"> <li>• escape routes, ladders and emergency exits</li> <li>• switchboard area clear and free of obstructions and rubber mats in position</li> <li>• high voltage areas clearly marked</li> <li>• protective guards for rotating machinery properly secured in place</li> <li>• steam, water or oil leaks anywhere in the machinery space</li> <li>• walkways, stairways and ladders are clean, dry and have non-skid surfaces where appropriate</li> <li>• oil soaked rags and other flammable materials kept in covered non-combustible bins</li> <li>• approved First Aid supplies readily available, accessible and clearly marked</li> <li>• bilges free of oil</li> </ul> <p>PC8. keep a lookout for the following deck area related safety aspects</p>



**SMC/N 9104 Maintain a healthy, safe and secure working environment**

	<ul style="list-style-type: none"> <li>• escape routes and embarking areas marked, unobstructed and no slipping and tripping hazards</li> <li>• “Danger-Enclosed Space” marked outside all such spaces having access other than via manholes</li> <li>• all deck lights operational and in sound enclosures</li> <li>• all hand-rails and guard-rails correctly fitted and secure, all ladder ways guarded by railings</li> <li>• all safety &amp; hazard zone identification signs posted &amp; readable, fire plan wallets updated</li> <li>• piping systems on deck are properly clamped</li> <li>• deck cranes, mooring winches &amp; windlasses are free from oil leak</li> <li>• area free of leaking pipes and fittings</li> </ul> <p>PC9. report any accidents or near accidents quickly and accurately to the proper person</p>
<b>Fire safety</b>	<p>To be competent ,the user/individual on the job must be able to:</p> <p>PC10. use appropriate fire extinguishers like sand, water, foam, etc on different types of fire which are caused by heating of metal, spontaneous ignition, sparking, electrical heating, etc</p>
<b>Emergencies, rescue and first-aid procedures</b>	<p>To be competent ,the user/individual on the job must be able to:</p> <p>PC11. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.</p> <p>PC12. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments</p> <p>PC13. participate in emergency procedures and move injured people and others during an emergency</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. responsibilities under the organization’s health, safety and security standards</p> <p>KA2. information about health, hygiene and safety at the workplace.</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. general rules on hygiene that one must follow</p> <p>KB2. knowledge of the adverse health effects that may be caused by the exposure to a hazard</p> <p>KB3. understand the physical signs and reactions related to exposures to such hazards</p> <p>KB4. knowledge of proper use of barriers that may be needed to protect an entrant from hazards</p> <p>KB5. knowledge of entry and exit of vessel and evacuation procedures in case of an emergency</p> <p>KB6. knowledge of what personal protective equipment is needed for safe entry into and exit from the space</p>



**SMC/N 9104 Maintain a healthy, safe and secure working environment**

	<p>KB7. knowledge of emergency indicators like sirens and what it indicates          KB8. knowledge of precautions to be taken in confined spaces          KB9. knowledge of precautions to be taken while working with working machine tools          KB10. knowledge of precautions to be taken while working in heights like safety nets, length of rope and other safety practices in marine industry          KB11. knowledge of ratings of motors and precautions to taken while dealing with electrical equipment          KB12. awareness of toxic gases in confined spaces          KB13. how to read indicators like oxygen level indicator          KB14. knowledge of precautions to be taken while sand blasting &amp; painting          KB15. hazards one can deal with oneself and hazards that must be reported to someone else          KB16. various dangers associated with the use of electrical equipment          KB17. preventive and remedial actions to be taken in the case of exposure to toxic materials          KB18. content of written accident report</p>
<b>Skills (S)</b>	
<b>A. Generic Skills</b>	<p><b>Reading Skills</b></p> <p>SA1. The user/individual on the job needs to know and understand how to:          SA2. read vernacular/english language          SA3. read and understand health and safety instructions          SA4. read various colour codes, as per standard electrical, mechanical and civil nomenclature</p> <p><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The user/individual on the job needs to know and understand how to:          SA5. express statements or information clearly so that others can hear and understand          SA6. participate in and understand the main points of simple discussions          SA7. communicate with peers</p>



SMC/N 9104 Maintain a healthy, safe and secure working environment

## NOS Version Control

NOS Code	SMC/N 9102		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Common	Last reviewed on	13/09/2017
Occupation	Common	Next review date	12/09/2020



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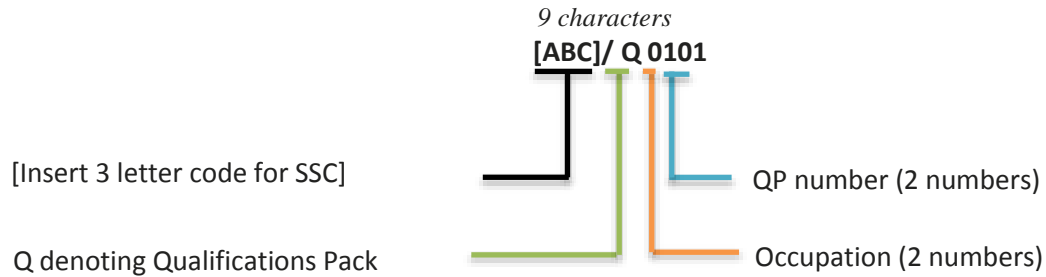


## Qualifications Pack for Lagger Insulator

### Annexure

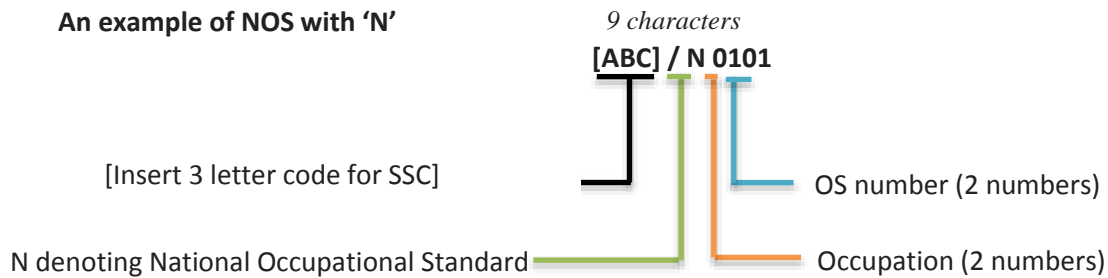
#### Nomenclature for QP and NOS

##### Qualifications Pack



##### Occupational Standard

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



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## Qualifications Pack for Lagger Insulator

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

Sub sectors	Range of occupation numbers
Defence Equipment - Land & Naval Systems	01-30
Ship building & Ship breaking	31-60
Electronic Security Equipment Manufacturing	61-75
Safety & Fire Fighting Equipment	76-90
Common	91-94

Sequence	Description	Example
Three letters	Industry name	SMC
Slash	/	/
Next letter	Whether QP or NOS	Q or N
Next two numbers	Occupation code	1
Next two numbers	OS number	1

Note :

- The range of occupation numbers have been decided based on the number of existing and future occupations in a segment





## Qualifications Pack for Lagger Insulator

### CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role:** Lagger Insulator

**Qualification Pack:** SMC/Q 3601

**Sector Skill Council:** Strategic Manufacturing Sector Skill Council

#### Guidelines for Assessment

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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out Of	Theory	Skills/ Practical
<b>SMC/N 3601</b> Carry out marine insulation operations	PC1. form sections of insulation in a shape and size to fit system and component	<b>100</b>	7	3	4
	PC2. cut out irregular shape lagging insulation for valves, fittings, flanges, and similar parts		7	3	4
	PC3. secure insulation in place with wire, metal straps, or cement		7	3	4
	PC4. cut and fit fiberglass cloth or other fabric, wrap it over insulation		7	3	4
	PC5. sew the seams and joints using special tie line, needle, and sail maker palm		7	3	4



**Qualifications Pack for Lagger Insulator**

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out Of	Theory	Skills/ Practical
	PC6. fix insulation in the living, command and engineering areas of a ship with aim to prevent the loss or increase of heat		8	3	5
	PC7. paint the insulation lagging with suitable fire retardant paint		7	2	5
	PC8. fix sound and acoustic insulation for noise filtering of machinery compartments and living spaces		8	2	6
	PC9. make insulated panels for ship's hull and internal structures and fix it with studs and fixtures		7	3	4
	PC10. fix pre-fabricated insulated panels on ships structures		8	2	6
	PC11. fabricate molded sections of acoustic insulation for special applications of sound dampening		6	3	3
	PC12. measure fabrication of acoustic insulation portable pads used in conjunction with various components on board ship		7	4	3
	PC13. fill blower hoppers with acoustic insulation and prepare surfaces for installation		7	2	5
	PC14. paint the acoustic insulation lagging with suitable fire retardant paints		7	2	5
			<b>Total</b>	<b>100</b>	<b>38</b>
<b>SMC/N 3602</b> Removal & Repair of marine insulation	PC1. remove molded insulation on various size piping systems	<b>100</b>	11	3	8
	PC2. repair insulation on various components/parts		11	3	8
	PC3. apply fiberglass cloth over sections smoothly		11	4	7
	PC4. dispose off waste material as per laid down procedures		11	4	7
	PC5. secure fitted insulation properly with relevant components as per the instructions		11	3	8



**Qualifications Pack for Lagger Insulator**

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out Of	Theory	Skills/ Practical
	PC6. prepare insulation material, marking and cutting of damaged insulation as per work instructions		11	3	8
	PC7. wrap piping or glue expanded insulation into place		11	4	7
	PC8. finish insulated surfaces with covers, strips or other sealants to prevent damage to the insulation		11	4	7
	PC9. place wire or rubber coatings on ship's internal structural if damaged during insulation removal		12	4	8
	<b>Total</b>		<b>100</b>	<b>32</b>	<b>68</b>
<b>SMC/N 9103</b> Work effectively in a collaborative environment	PC1. define own work and responsibilities	<b>100</b>	4	1	3
	PC2. understand individual goals		4	1	3
	PC3. understand work requirements		4	1	3
	PC4. collaborate and integrate own work with other people's work		5	2	3
	PC5. consult with others to achieve smooth workflow and help in maximising effectiveness and efficiency in carrying out tasks		4	1	3
	PC6. identify any problems with team members and take initiative to solve problems in a positive manner		5	2	3
	PC7. discuss with the appropriate authority or person, any problems that arise, which may affect the work and remain unresolved		4	1	3
	PC8. work in a way that shows respect for others		4	2	2
	PC9. carry out any commitments made to others		5	2	3
	PC10. seek ways of improvement of work		4	1	3
	PC11. learn skills from others that help in performing the work efficiently and share own skills with them, which may benefit their work		5	2	3



*Qualifications Pack for Lagger Insulator*

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out Of	Theory	Skills/ Practical
	PC12. work together as a single unit to ensure efficiency in work		4	1	3
	PC13. receive information and instructions accurately from the supervisor and colleagues		4	1	3
	PC14. seek clarifications where required without disruption of own or others work		4	1	3
	PC15. give feedback of work done and report problems identified in the field		4	1	3
	PC16. communicate with other people clearly and effectively		4	1	3
	PC17. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		4	1	3
	PC18. exhibit proper work etiquettes		4	1	3
	PC19. display active listening skills while interacting with others at work and receiving feedback		4	1	3
	PC20. demonstrate responsible and disciplined behaviour		4	1	3
	PC21. develop understanding, goodwill and trust with team members		4	1	3
	PC22. resolve individual disagreements with the concerned person		4	2	2
	PC23. follow the organisation's policies and procedures to resolve conflicts		4	1	3
	PC24. escalate unresolved grievances to appropriate authority		4	1	3
		<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>



**Qualifications Pack for Lagger Insulator**

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out Of	Theory	Skills/ Practical
<b>SMC/N 9104</b> Maintain a healthy, safe and secure working environment	PC1. maintain cleanliness and hygiene	<b>100</b>	8	3	5
	PC2. wear clean clothing		8	3	5
	PC3. follow health procedures		8	3	5
	PC4. identify common health hazards		8	3	5
	PC5. keep a look out for hazards		8	3	5
	PC6. keep a lookout for accommodation for safety		8	3	5
	PC7. keep a lookout for the Machinery		8	3	5
	PC8. keep a lookout for the Deck		8	3	5
	PC9. report any accidents or near accidents quickly and accurately to the proper person		8	3	5
	PC10. use appropriate fire extinguishers on different types of fires correctly causes of fires		7	3	4
	PC11. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		7	2	5
	PC12. participate in emergency procedures and move injured people and others in correct method during an emergency		7	3	4
	PC13. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.		7	1	6
	<b>Total</b>	<b>100</b>	<b>36</b>	<b>64</b>	