



### **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 – Refractory Brick Layer**

SECTOR: Iron & Steel

SUB-SECTOR: Steel

REFERENCE ID: ISC/Q1201

ALIGNED TO: NCO-2004/NIL

**Title of Job:** The job involves laying the right quality of refractory bricks with the right mortar in the designated areas of a thermal installation in a steel plant, according to design specification.

**Personal Attributes:** This job requires the candidate to work independently as well as in teams. Some of the key attributes include physical fitness, free from colour-blindness, having analytical skills, problem solving attitude, high concentration levels, a sharp reflex and an willingness to work in a factory environment.



Job Details

Qualifications Pack Code	ISC/Q1201		
Job Role	Refractory Brick Layer		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron & Steel	Drafted on	21/11/2014
Sub-sector	Steel	Last reviewed on	25/03/2015
Occupation	Refractory Maintenance	Next review date	25/03/2016

Job Role	Refractory Brick Layer
Role Description	The job involves laying the right quality of refractory bricks with the right mortar in the designated areas of a thermal installation in a steel plant, according to design specification.
NSQF level	3
Minimum Educational Qualifications	Class 10 <sup>th</sup> Pass
Maximum Educational Qualifications	Class 12 <sup>th</sup> Pass
Training (Suggested but not mandatory)	<ul style="list-style-type: none"> <li>• Practical / on-job training for minimum 6 months (mandatory)</li> <li>• 5S and safety practices</li> </ul>
Experience	<ul style="list-style-type: none"> <li>• 0-2 years' experience in similar function</li> <li>• In lieu of minimum qualification the incumbent should have minimum 3 to 4 years' experience as general labour/ helper in the similar operation under an experienced brick-layer/supervisor</li> </ul>
Occupational Standards (OS)	<p>Compulsory:</p> <p><a href="#">ISC/N1201: Understand the brick laying job</a>  <a href="#">ISC/N1202: Arrange necessary tools, tackles and material for brick laying job</a>  <a href="#">ISC/N1203: Lay refractory bricks according to design</a>  <a href="#">ISC/N0008: Use basic health and safety practices at the workplace</a>  <a href="#">ISC/N0009: Work effectively with others</a></p>



	Optional:  N/A
Performance Criteria	As described in the relevant NOS units



Definitions

Keywords /Terms	Description
Core Skills/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 NOS, these include communication related skills that are applicable to most job roles.
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 NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	Organisational 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.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.
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.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Keywords /Terms	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack
5 S	Technique of maintaining orderliness –Japanese terminology
CP	Control Plan
WI	Work Instructions

**Acronyms**



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## Overview

This unit is about laying the right quality of refractory bricks with the right mortar in the designated areas of a thermal installation in a steel plant, according to design specifications.



Unit Code	ISC/N1201
Unit Title (Task)	Understand the brick laying job
Description	This unit is about understanding the brick-laying job from the brick-laying supervisor at the work site with the help of sketches/drawings/specifications.
Scope	This OS unit/task covers the following: <ul style="list-style-type: none"> <li>Understand the brick-laying job from the supervisor</li> <li>Study the drawing and specifications of the job at the site of the particular installation where bricking needs to be done</li> </ul>
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Understand the brick-laying job from the supervisor	To be competent, the user/individual on the job must be able to: PC1. Understand the brick laying job at actual work site from the supervisor PC2. Study the area where the bricking is to be performed
Study the drawing and specifications of the job at the site of the particular installation where bricking needs to be done	To be competent, the user/individual on the job must be able to: PC3. Study the drawing/sketch/specifications of the job PC4. Plan the requirements of tools, tackles & materials e.g. brick cutting machine, tape, power saw, hammer, spirit level, measuring tape, trowels, hand tools, jointing tools, wire-clamps, sledge hammer, chipping gun, chisel etc.
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. Job specific documents e.g. drawing of the basic brick-laying scheme and importance of the same KA2. Risk and impact of not following defined procedures/work instructions KA3. Fundamental concepts of 1S & 2S
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Basic terminologies of refractory bricking KB2. Basic drawing/specifications related to refractory bricking KB3. Basic knowledge and use of various tools, tackles and materials required for refractory brick laying activities
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing skills and reading Skills The user/ individual on the job needs to know and understand how to: SA1. Read & understand simple drawings and sketches related to the job in order to execute the job at hand





	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:  SA2. Answer the queries raised by the Supervisor or colleague in the operative team in E/H/LL SA3. Discuss the task at hand and work-loads with others in E/H/LL
B. Professional Skills	Time Management
	The user/individual on the job needs to know and understand how to:  SB1. Prioritize and execute tasks within the scheduled time limits
	Reliability
	The user/individual on the job needs to know and understand how to:  SB2. Avoid absenteeism and maintain quality of work SB3. Work in a disciplined environment and adhere to working norms of the organisation SB4. Be punctual and adhere to timelines

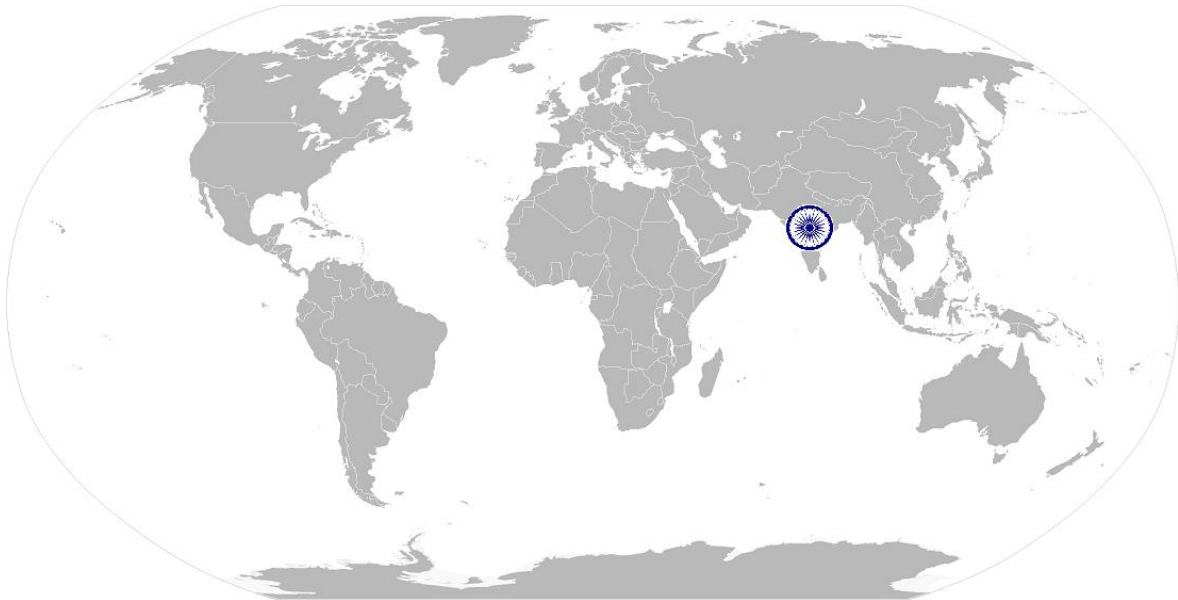






## NOS Version Control

NOS Code	ISC/N1201		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and Steel	Drafted on	21/11/2014
Industry Sub-sector	Steel	Last reviewed on	25/03/2015
Occupation	Refractory Maintenance	Next review date	25/03/2016





ISC/N1202: Arrange necessary tools, tackles and material for brick laying job

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## Overview

This unit is about arranging tools & tackles along with the raw materials required for the job of brick laying.



Unit Code	ISC/N1202
Unit Title (Task)	Arrange necessary tools, tackles and material for brick laying job
Description	This unit is about arranging the required tools & tackles for the brick laying job and also getting ready with the required the raw materials for the job.
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Arrange tools, tackles and raw materials required for the brick laying job</li> <li>• Prepare the mortar or/and the bonding material in the correct proportion following the SOP</li> </ul>
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Arrange tools, tackles and raw materials required for the brick laying job	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. List out tools, tackles and raw materials required for the brick laying job            PC2. Arrange the tools, tackles and raw materials from the store / department            PC3. Understand how to use tools &amp; tackles like brick cutting machine, tape, power saw, hammer, spirit level, measuring tape, trowels, hand tools, jointing tools, wire-clamps, sledge hammer, , chipping gun, chisel etc.            PC4. Quantify volume, sizes and numbers of the required raw materials e.g. different bricks, mortar powder, sand, clay etc.</p>
Prepare the mortar or/and the bonding material in the correct proportion following the SOP	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC5. How to mix specified amounts of sand/ clay/ mortar powder with water in correct proportion to form refractory mixtures, or mortar for bonding</p>
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. Job specific documents e.g. drawing of the basic brick-laying scheme and importance of the same            KA2. Risk and impact of not following defined procedures/work instructions            KA3. Fundamental concepts of 1S &amp; 2S</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Basic terminologies of refractory bricking            KB2. Basic drawing/specifications related to refractory bricking            KB3. Basic knowledge and use of various tools, tackles and materials required for Refractory Brick Laying activities            KB3. The nature of the different types of mortars and their compatibility with the kind of surface where to be applied and with the bricks/blocks to be used            KB4. Effect of quantity of water on mortar quality and the necessity of using it within a fixed time before it settles</p>

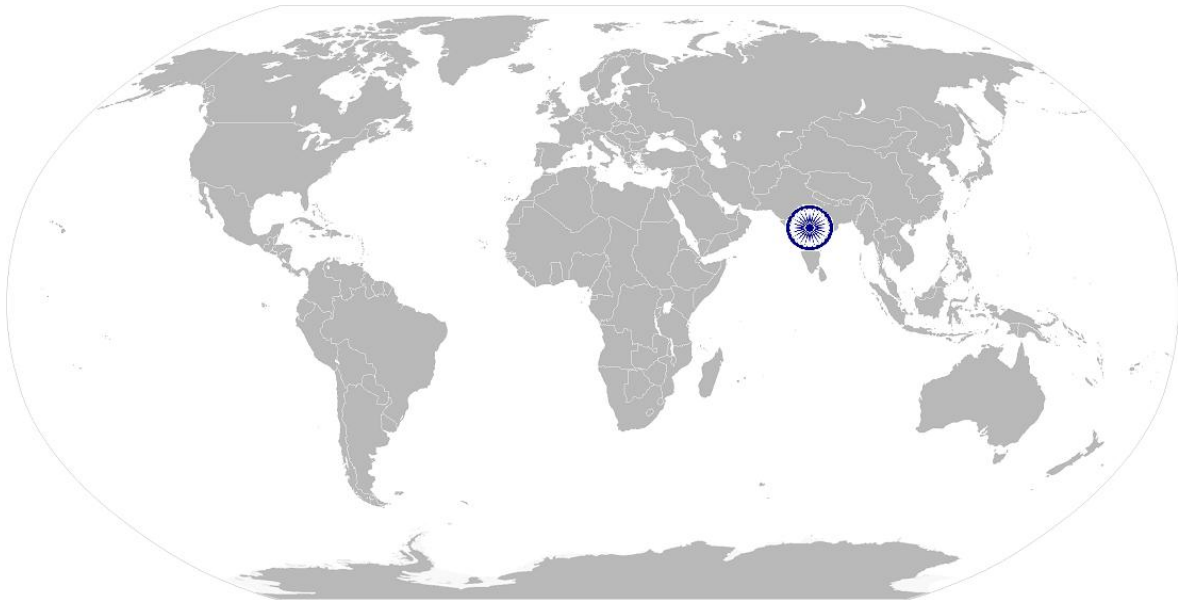


Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing skills and reading skills
	The user/ individual on the job needs to know and understand how to:  SA1. Read & understand simple drawings and sketches related to the job in order to execute the job at hand
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:  SA2. Answer the queries raised by the Supervisor or colleague in the operative team in E/H/LL SA3. Discuss the task at hand and work-loads with others in E/H/LL
B. Professional Skills	Time Management
	The user/individual on the job needs to know and understand how to:  SB1. Prioritize and execute tasks within the scheduled time limits
	Reliability
	The user/individual on the job needs to know and understand how to:  SB2. Avoid absenteeism and maintain quality of work SB3. Work in a disciplined environment and adhere to working norms of the organisation SB4. Be punctual and adhere to timelines



## NOS Version Control

NOS Code	ISC/N1202		
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Occupation	Refractory Maintenance	Next review date	25/03/2016





ISC/N1203: Lay refractory bricks according to design

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## Overview

This unit is about laying the right quality of refractory bricks with the right mortar in the designated areas of a thermal installation in a steel plant, according to design specifications.





Unit Code	ISC/N1203
Unit Title (Task)	Lay refractory bricks according to design
Description	This unit is about laying the right quality of refractory bricks with the right mortar in the designated areas of a thermal installation in a steel plant, according to the design specifications.
Scope	<p>This OS unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Study the drawing and specifications of the job &amp; study the area of the particular installation where bricking needs to be done</li> <li>• Prepare the surface where bricking is to be done</li> <li>• Break or cut new bricks, tiles, or blocks to size where needed to suit the specific application</li> <li>• Lay the bricks with the setting mixture following the SOP on installations like cupola, kilns, ovens, or furnaces</li> </ul>
<b>Performance Criteria (PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
Study the drawing and specifications of the job & study the area of the particular installation where bricking needs to be done	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Read the drawing(s) &amp; specifications for the brick-laying job &amp; follow the instructions in SOP</p> <p>PC2. Understand the bricking requirements of a straight wall, corner wall, arch etc.</p>
Prepare the surface where bricking is to be done	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC3. Remove burned or damaged brick or mortar, using sledgehammer, crowbar, chipping gun, or chisel</p> <p>PC4. Clean working surface to remove scale, dust, soot, or chips of brick and mortar, using broom, wire brush, or scraper</p>
Break or cut new bricks, tiles, or blocks to size where needed to suit the specific application	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC5. Break or cut new bricks, tiles, or blocks to size where needed to suit the specific application, using brick cutting m/c, trowel edge, hammer, or power saw.</p>
Lay the bricks with the setting mixture following the SOP on installations like cupola, kilns, ovens, or furnaces	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC6. Lay the bricks with the setting mixture following the SOP on the designated areas requiring repair or replacement or new construction</p> <p>PC7. Remove excess mortar with trowels and hand tools, and finish mortar joints with jointing tools, for a sealed, uniform appearance</p> <p>PC8. Ensure precautions for proper drying of the newly done surface</p> <p>PC9. Follow safety precautions especially while handling heavy precast blocks/ slippery &amp; smooth carbonaceous bricks</p>



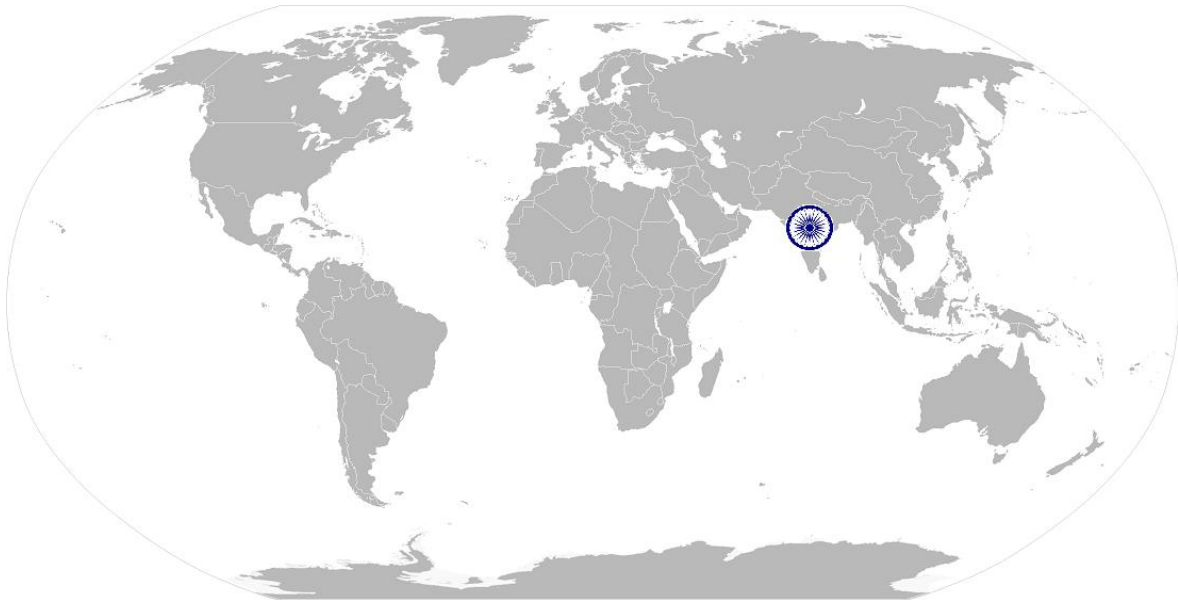


Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation and its processes)	The user/individual on the job needs to know and understand:  KA1. Job specific documents e.g. drawing of the basic brick-laying scheme and importance of the same KA2. Risk and impact of not following defined procedures/work instructions KA3. Fundamental concepts of 1S & 2S
B. Technical Knowledge	The user/individual on the job needs to know and understand:  KB1. Characteristics of different types of bricks (composition, property & compatibility) KB2. How to build refractory arches where ever necessary KB3. How to handle all equipment, tools & tackles required for the job KB4. Compatibility of the bricks/blocks with the setting material to be applied
Skills (S) w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	<b>Writing skills and reading Skills</b>
	The user/ individual on the job needs to know and understand how to:  SA1. Read & understand simple drawings and sketches related to the job in order to execute the job at hand
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to:  SA2. Answer the queries raised by the Supervisor or colleague in the operative team in E/H/LL SA3. Discuss the task at hand and work-loads with others in E/H/LL
B. Professional Skills	<b>Time Management</b>
	The user/individual on the job needs to know and understand how to:  SB1. Prioritize and execute tasks within the scheduled time limits
	<b>Reliability</b>
	The user/individual on the job needs to know and understand how to:  SB2. Avoid absenteeism and maintain quality of work SB3. Work in a disciplined environment and adhere to working norms of the organisation SB4. Be punctual and adhere to timelines



## NOS Version Control

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Industry	Iron and Steel	Drafted on	21/11/2014
Industry Sub-sector	Steel	Last reviewed on	25/03/2015
Occupation	Refractory Maintenance	Next review date	25/03/2016





ISC/N0008: Use basic health and safety practices at the workplace

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# National Occupational Standards



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## **Overview**

This unit covers health, safety and security at the workplace. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment.



Unit Code	ISC/N0008
Unit Title (Task)	Use basic health and safety practices at the work place
Description	<p>This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace. It covers responsibilities towards self, others, assets and the environment.</p> <p>It includes understanding of risks and hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies, etc.</p>
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Health and safety procedures</li> <li>• Fire safety procedures</li> <li>• Emergencies, rescue and first aid procedures</li> </ul>
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Health and safety procedures	<p>The user/individual on the job should be able to:</p> <p>PC1. Use protective clothing/equipment for specific tasks and work conditions</p> <p>Protective clothing includes:</p> <ul style="list-style-type: none"> <li>• Leather or asbestos gloves</li> <li>• Flame proof aprons</li> <li>• Flame proof overalls buttoned to neck</li> <li>• Cuff less (without folds) trousers</li> <li>• Reinforced footwear</li> <li>• Helmets/hard hats</li> <li>• Cap and shoulder covers</li> <li>• Ear defenders/plugs</li> <li>• Safety boots</li> <li>• Knee pads</li> <li>• Particle masks</li> <li>• Glasses/gloves/visors</li> </ul> <p>Equipment includes:</p> <ul style="list-style-type: none"> <li>• Hand shields</li> <li>• Machine guards</li> <li>• Residual current devices</li> <li>• Shields</li> <li>• Dust sheets</li> <li>• Respirator</li> </ul> <p>PC2. State the name and location of people responsible for health and safety in the workplace</p> <p>Various areas are listed below:</p>



- On chemical containers
- Equipment
- Packages
- Inside buildings
- Open areas, public places etc.

PC3. State the names and location of documents that refer to health and safety in the workplace

PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace

Hazards include:

- Working with electrical and thermal tools and equipment
- Sharp edged and heavy tools
- Heated metals
- Oxyfuel and gas cylinders
- Welding radiation
- Surfaces: sharp, slippery, uneven, chipped, broken, etc.
- Substances: chemicals, gas, oxy-fuel, fumes, dust, etc.
- Physical: working at heights, large and heavy objects and machines, sharp and piercing objects, tools and machines, intense light, load noise, obstructions in corridors, by doors, blind turns, noise, over stacked shelves and packages, etc.
- Electrical: power supply and points, loose and naked cables and wires, electrical machines and appliances, etc.

PC5. Carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role

Safe working practices include:

- Using protective clothing and equipment
- Putting up and reading safety signs
- Handle tools in the correct manner and store and maintain them properly
- Keep work area clear of clutter, spillage and unsafe object lying casually
- While working with electricity take all electrical precautions like insulated clothing, adequate equipment insulation, use of control equipment, dry work area, switch off the power supply when not required, etc.
- Safe lifting and carrying practices
- Use equipment that is working properly and is well maintained
- Take due measures for safety while working in confined places, trenches or at heights, etc. Including safety harness, fall arrestors etc.

Methods are:

- Training in health and safety procedures
- Using health and safety procedures
- Use of equipment and working practices (such as safe carrying procedures)
- Safety notices, advice
- Instruction from colleagues and supervisors

PC6. State location of general health and safety equipment in the workplace

PC7. Inspect for faults, set up and safely use steps and ladders in general use

Faults :



	<ul style="list-style-type: none"> <li>• Corrosion of metal components</li> <li>• Deterioration</li> <li>• Splits and cracks timber components</li> <li>• Imbalance</li> <li>• Loose rungs</li> <li>• Nuts or bolts, etc.</li> </ul> <p>Set up:</p> <ul style="list-style-type: none"> <li>• Firm/level base</li> <li>• Clip/lash down</li> <li>• Leaning at the correct angle, etc.</li> </ul> <p>PC8. Work safely in and around trenches, elevated places and confined areas          PC9. Lift heavy objects safely using correct procedures          PC10. Apply good housekeeping practices at all times. Good housekeeping practices:</p> <ul style="list-style-type: none"> <li>• Clean/tidy work areas</li> <li>• Removal/disposal of waste products</li> <li>• Protect surfaces</li> </ul> <p>PC11. Identify common hazard signs displayed in various areas          PC12. Retrieve and/or point out documents that refer to health and safety in the workplace</p>
<p>Fire safety procedures</p>	<p>The user/individual on the job should be able to:</p> <p>PC13. Use the various appropriate fire extinguishers on different types of fires correctly.</p> <p>Fire extinguishers:</p> <ul style="list-style-type: none"> <li>• Sand</li> <li>• Water</li> <li>• Foam</li> <li>• Co2</li> <li>• Dry powder</li> </ul> <p>Fires:</p> <ul style="list-style-type: none"> <li>• Class A: Ordinary solid combustibles, e.g. wood, paper, cloth, plastic, charcoal etc.</li> <li>• Class B: Flammable liquids and gases, e.g. gasoline, propane, diesel fuel, tar, cooking oil and similar substances</li> <li>• Class C: Electrical equipment e.g. appliances, wiring, breaker panels etc. (these categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no longer receiving electricity)</li> <li>• Class D: Combustible metals such as magnesium, titanium, and sodium (these fires burn at extremely high temperatures and require special suppression agents)</li> </ul> <p>Causes of fires:</p> <ul style="list-style-type: none"> <li>• Heating of metal</li> <li>• Spontaneous ignition</li> <li>• Sparking,</li> <li>• Electrical heating</li> <li>• Loose fires (e.g. Smoking, welding, etc.)</li> <li>• Chemical fires, etc.</li> </ul>





	<p>PC14. Demonstrate rescue techniques applied during fire hazard          PC15. Demonstrate good housekeeping in order to prevent fire hazards          PC16. Demonstrate the correct use of a fire extinguisher</p>
<p>Emergencies, rescue and first-aid procedures</p>	<p>The user/individual on the job should be able to:</p> <p>PC17. Demonstrate how to free a person from electrocution          PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.          PC19. Demonstrate basic techniques of bandaging          PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments . few General health and safety equipment are mentioned below :</p> <ul style="list-style-type: none"> <li>• Fire extinguishers</li> <li>• First aid equipment</li> <li>• Safety instruments and clothing</li> <li>• Safety installations, e.g. Fire exits, exhaust fans etc.</li> </ul> <p>PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments          PC22. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases          PC23. Demonstrate the artificial respiration and the CPR Process          PC24. Participate in emergency procedures. Emergency procedures are:</p> <ul style="list-style-type: none"> <li>• Raising alarm</li> <li>• Safe/efficient evacuation</li> <li>• Correct means of escape</li> <li>• Correct assembly point</li> <li>• Roll call</li> <li>• Correct return to work</li> </ul> <p>PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible          Incident Report should capture:</p> <ul style="list-style-type: none"> <li>• Name</li> <li>• Date/time of incident</li> <li>• Date/time of report,</li> <li>• Location</li> <li>• Environment conditions</li> <li>• Persons involved</li> <li>• Sequence of events</li> <li>• Injuries sustained</li> <li>• Damage sustained</li> <li>• Actions taken</li> <li>• Witnesses</li> <li>• Supervisor/manager notified</li> </ul> <p>Documents:</p> <ul style="list-style-type: none"> <li>• Fire notices</li> <li>• Accident reports</li> <li>• Safety instructions for equipment and procedures</li> <li>• Company notices and documents</li> </ul>





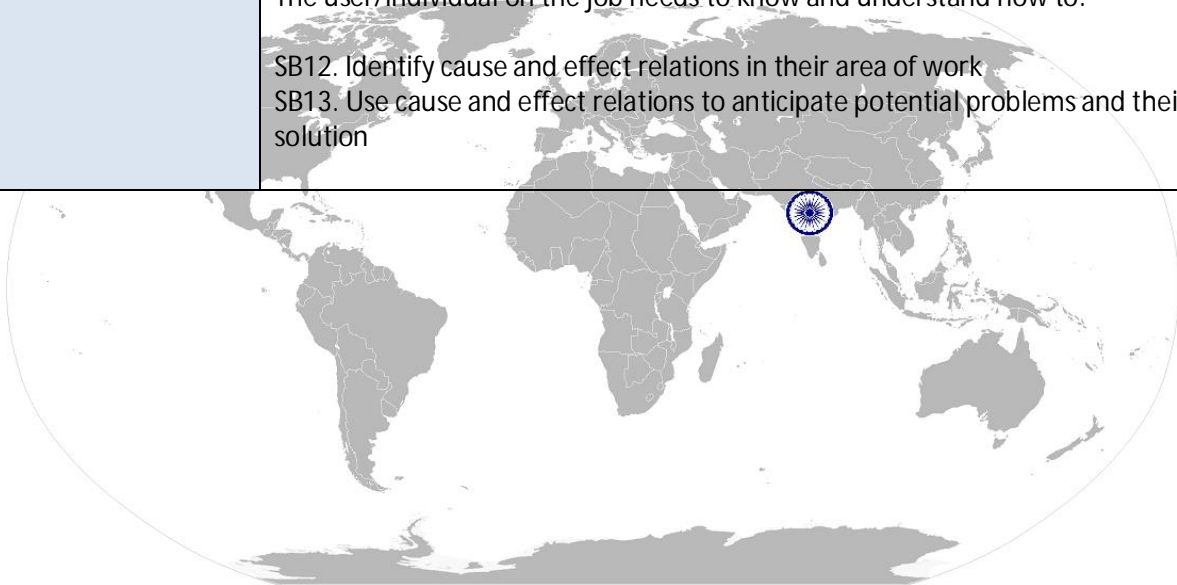
	<ul style="list-style-type: none"> <li>• Legal documents (e.g. Government notices)</li> </ul> <p>Job titles:</p> <ul style="list-style-type: none"> <li>• Health and safety officer</li> <li>• First aid officer</li> <li>• Fire officer</li> </ul> <p>PC26. Demonstrate correct method to move injured people and others during an emergency</p>
<b>Element</b>	<b>Knowledge and Understanding</b>
<p>A. Organisational Context (Knowledge of the Company/ Organisation and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. State the names (and job titles if applicable), and describe where to find, all the people responsible for health and safety in a workplace</p> <p>KA2. State the names and location of documents that refer to health and safety in the workplace</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB3. Meaning of “hazards” and “risks”</p> <p>KB4. Health and safety hazards commonly present in the work environment and related precautions</p> <p>KB5. Possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible</p> <p>KB6. Activities and causes of risk and accident</p> <p>KB7. Methods of accident prevention</p> <p>KB8. Safe working practices when working with tools and machines</p> <p>KB9. Safe working practices while working at various hazardous sites</p> <p>KB10. Where to find all the general health and safety equipment in the workplace</p> <p>KB11. Various dangers associated with the use of electrical equipment</p> <p>KB12. Preventative and remedial actions to be taken in the case of exposure to toxic materials.</p> <ul style="list-style-type: none"> <li>• Exposure: ingested, contact with skin, inhaled</li> <li>• Preventative action: ventilation, masks, protective clothing/equipment</li> <li>• Remedial action: immediate first aid, report to supervisor</li> <li>• Materials: solvents, flux, lead</li> </ul> <p>KB13. Importance of using protective clothing/equipment while working</p> <p>KB14. Precautionary activities to prevent the fire accident</p> <p>Activities and causes:</p> <ul style="list-style-type: none"> <li>• Physical actions</li> <li>• Reading</li> <li>• Listening to and giving instructions</li> <li>• Inattention</li> <li>• Sickness and incapacity (e.g. Drunkenness)</li> <li>• Health hazards (e.g. Untreated injuries and contagious illness)</li> </ul> <p>KB15. Various causes of fire</p> <p>KB16. Techniques of using the different fire extinguishers</p> <p>KB17. Different methods of extinguishing fire</p> <p>KB18. Rescue techniques applied during a fire hazard</p>



	<p>KB19. Various types of safety signs and what they mean</p> <p>KB20. Appropriate basic first aid treatment relevant to the condition e.g. Shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries</p> <p>KB21. Content of written accident report</p> <p>KB22. Potential injuries and ill health associated with incorrect manual handling</p> <p>KB23. Safe lifting and carrying practices</p> <p>KB24. Personal safety, health and dignity issues relating to the movement of a person by others</p> <p>KB25. Potential impact to a person who is moved incorrectly</p>
<b>Skills (S) w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
A. Core Skills/ Generic Skills	<b>Reading and Writing Skills</b>
	The user/individual on the job needs to know and understand how to:
	SA1. Read and comprehend basic content to read labels, charts, signages SA2. Read and comprehend basic English to read manuals of operations SA3. Read and write an accident/incident report in local language or English
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to:
	SA4. Question co-workers appropriately in order to clarify instructions and other issues SA5. Give clear instructions to co-workers, subordinates others
B. Professional Skills	<b>Decision Making</b>
	The user/individual on the job needs to know and understand how to:
	SA6. Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand:
	SB1. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
B. Professional Skills	<b>Working with others</b>
	The user/individual on the job needs to know and understand how to:
	SB2. Remain congenial while discussing and debating issues with co-workers SB3. Follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB4. Ask for, provide and receive required assistance where possible to ensure achievement of work related objectives



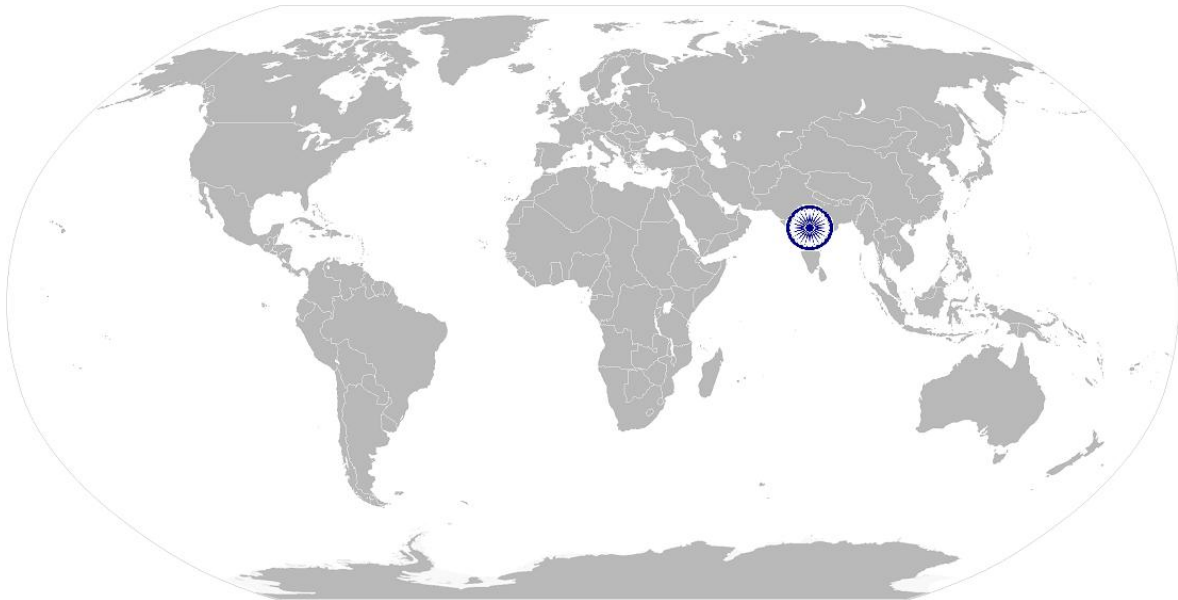
	SB5. Thank co-workers for any assistance received SB6. Offer appropriate respect based on mutuality and respect for fellow workmanship and authority
	<b>Problem Solving</b>
	The user/individual on the job needs to know and understand how to:  SB7. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB8. Identify immediate or temporary solutions to resolve delays SB9. Identify sources of support that can be availed of for problem solving for various kind of problems SB10. Seek appropriate assistance from other sources to resolve problems SB11. Report problems that you cannot resolve to appropriate authority
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to:  SB12. Identify cause and effect relations in their area of work SB13. Use cause and effect relations to anticipate potential problems and their solution





## NOS Version Control

NOS Code	ISC/N0008		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and Steel	Drafted on	23/07/2014
Industry Sub-sector	All Departments	Last reviewed on	30/12/2014
Occupation	Refractory Maintenance	Next review date	30/12/2015





ISC/N0009: Work effectively with others

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# National Occupational Standards



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## **Overview**

This unit covers basic practices that improve effectiveness of working with others in an organisational set-up.



Unit Code	ISC/N0009
Unit Title (Task)	Work effectively with others
Description	This unit covers basic etiquette and competencies that a candidate is required to possess and demonstrate in their behaviour and interactions with others at the workplace.
Scope	This unit/task covers the following: <ul style="list-style-type: none"> <li>• Ensure appropriate communication with superiors, peers and others as applicable at work place</li> <li>• Demonstrate appropriate behaviour and etiquette at work place</li> </ul>
Performance Criteria (PC) w.r.t. the Scope	
Element	Performance Criteria
Ensure appropriate communication with superiors, peers and others as applicable at work place	The user/individual on the job should be able to: <p>PC1. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required</p> <p>PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt</p> <p>PC3. Provide information to others clearly, at a pace and in a manner that helps them to understand</p>
Demonstrate appropriate behaviour and etiquette at work place	The user/individual on the job should be able to: <p>PC4. Display helpful behaviour by assisting others in performing tasks in a positive manner, where required and possible</p> <p>PC5. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks</p> <p>PC6. Display appropriate communication etiquette while working</p> <p>PC7. Display active listening skills while interacting with others at work</p> <p>PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism</p> <p>PC9. Demonstrate responsible and disciplined behaviours at the workplace</p> <p>PC10. Escalate grievances and problems to</p>
Element	Knowledge and Understanding
A. Organisational Context (Knowledge of the Company/ Organisation and its processes)	The user/individual on the job needs to know and understand: <p>KA1. Legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. Reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA3. Relevant people and their responsibilities within the work area</p> <p>KA4. Escalation matrix and procedures for reporting work and employment related issues</p>





<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. Various categories of people that one is required to communicate and co-ordinate with in the organization          KB2. Importance of effective communication in the workplace          KB3. Importance of teamwork in organizational and individual success          KB4. Various components of effective communication          KB5. Key elements of active listening          KB6. Value and importance of active listening and assertive communication          KB7. Barriers to effective communication          KB8. Importance of tone and pitch in effective communication          KB9. Importance of avoiding casual expletives and unpleasant terms while communicating professional circles          KB10. How poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer          KB11. Importance of ethics for professional success          KB12. Importance of discipline for professional success          KB13. What constitutes disciplined behaviour for a working professional          KB14. Common reasons for interpersonal conflict          KB15. Importance of developing effective working relationships for professional success          KB16. Expressing and addressing grievances appropriately and effectively          KB17. Importance and ways of managing interpersonal conflict effectively</p>
<p>Skills (S) w.r.t. the scope</p>	
<p>Element</p>	<p>Skills</p>
<p>A. Core Skills/ Generic Skills</p>	<p>Reading and Writing Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA1. Read and comprehend basic content to read labels, charts, signage's          SA2. Read and comprehend basic English to read manuals of operations          SA3. Read and write an accident/incident report in local language or English</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA4. Question co-workers appropriately in order to clarify instructions and other issues          SA5. Provide clear instructions to co-workers, subordinates others</p> <p>Decision Making</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines</p>



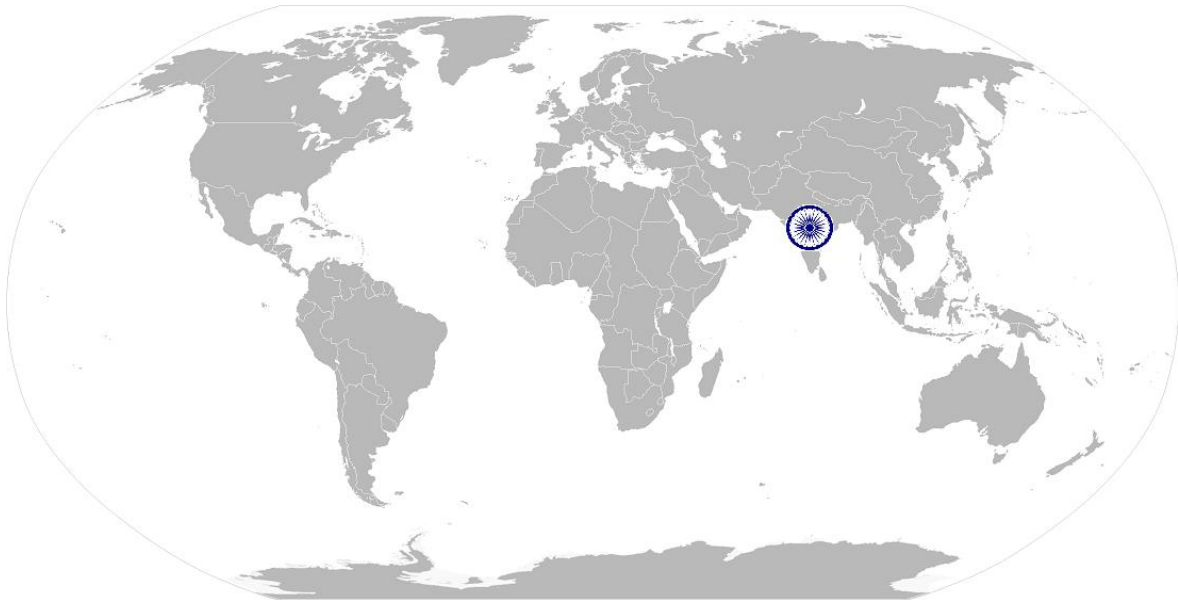


B. Professional Skills	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand:  SB1. Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	<b>Working with others</b>
	The user/individual on the job needs to know and understand how to:  SB2. Remain congenial while discussing and debating issues with co-workers SB3. Follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB4. Ask for, provide and receive required assistance where possible to ensure achievement of work related objectives SB5. Thank co-workers for any assistance received SB6. Offer appropriate respect based on mutuality and respect for fellow workmanship and authority
	<b>Problem Solving</b>
	The user/individual on the job needs to know and understand how to:  SB7. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB8. Identify immediate or temporary solutions to resolve delays SB9. Identify sources of support that can be availed of for problem solving for various kind of problems SB10. Seek appropriate assistance from other sources to resolve problems SB11. Report problems that you cannot resolve to appropriate authority
<b>Analytical Thinking</b>	
The user/individual on the job needs to know and understand how to:  SB12. Identify cause and effect relations in their area of work SB13. Use cause and effect relations to anticipate potential problems and their solution	



## NOS Version Control

NOS Code	ISC/N0009		
Credits(NSQF)	TBD	Version number	1.0
Industry	Iron and Steel	Drafted on	23/07/2014
Industry Sub-sector	All Departments	Last reviewed on	30/12/2014
Occupation	Refractory Maintenance	Next review date	30/12/2015





CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role: Refractory Brick Layer

Qualification Pack: ISC/Q1201

Sector Skill Council: Indian Iron & Steel 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. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria.
5. To pass the Qualification Pack , every trainee should score a minimum of 60% in every NOS.
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

				Marks Allocated	
NOSs	PCs	Total Marks 1000	Out Of	Theory	Practical
ISC/N1201: Understand the brick laying job	PC1. Understand the brick laying job at actual work site from the supervisor	100	20	10	10
	PC2. Study the area where the bricking is to be performed		10	0	10
	PC3. Study the drawing/sketch/specifications of the job		20	20	0
	PC4. Plan the requirements of tools, tackles & materials e.g. brick cutting machine, tape, power saw, hammer, spirit level, measuring tape, trowels, hand tools, jointing tools, wire-clamps, sledge hammer, chipping gun, chisel etc.		50	50	0
		Total	100	80	20
ISC/N1202: Arrange necessary	PC1. List out tools, tackles and raw materials required for the brick laying job	200	10	10	0



tools, tackles and material for brick laying job	PC2. Arrange the tools, tackles and raw materials from the store / department		20	0	20
	PC3. Understand how to use tools & tackles like brick cutting machine, tape, power saw, hammer, spirit level, measuring tape, trowels, hand tools, jointing tools, wire-clamps, sledge hammer, , chipping gun, chisel etc.		100	20	80
	PC4. Quantify volume, sizes and numbers of the required raw materials e.g. different bricks, mortar powder, sand, clay etc.		30	30	0
	PC5. How to mix specified amounts of sand/ clay/ mortar powder with water in correct proportion to form refractory mixtures, or mortar for bonding		40	0	40
		<b>Total</b>	200	60	140
ISC/N1203: Lay refractory bricks according to design	PC1. Read the drawing(s)& specifications for the brick-laying job & follow the instructions in SOP	450	20	20	0
	PC2. Understand the bricking requirements of a straight wall, corner wall, arch etc.		30	30	0
	PC3. Remove burned or damaged brick or mortar, using sledgehammer, crowbar, chipping gun, or chisel		20	0	20
	PC4. Clean working surface to remove scale, dust, soot, or chips of brick and mortar, using broom, wire brush, or scraper		40	0	40
	PC5. Break or cut new bricks, tiles, or blocks to size where needed to suit the specific application, using brick cutting m/c, trowel edge, hammer, or power saw.		70	0	70
	PC6. Lay the bricks with the setting mixture following the SOP on the designated areas requiring repair or replacement or new construction		200	20	180
	PC7. Remove excess mortar with trowels and hand tools, and finish mortar joints with jointing tools, for a sealed, uniform appearance		20	0	20



	PC8. Ensure precautions for proper drying of the newly done surface		10	0	10
	PC9. Follow safety precautions especially while handling heavy precast blocks/ slippery & smooth carbonaceous bricks		40	10	30
		<b>Total</b>	<b>450</b>	<b>80</b>	<b>370</b>
ISC/N0008: Use basic health and safety practices at the workplace	PC1. Use protective clothing/equipment for specific tasks and work conditions	150	10	5	5
	PC2. State the name and location of people responsible for health and safety in the workplace		5	0	5
	PC3. State the names and location of documents that refer to health and safety in the workplace		0	0	0
	PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace		10	5	5
	PC5. Carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role		10	5	5
	PC6. State location of general health and safety equipment in the workplace		5	0	5
	PC7. Inspect for faults, set up and safely use steps and ladders in general use		5	0	5
	PC8. Work safely in and around trenches, elevated places and confined areas		5	0	5
	PC9. Lift heavy objects safely using correct procedures		5	0	5
	PC10. Apply good housekeeping practices at all times		0	0	0
	PC11. Identify common hazard signs displayed in various areas		5	5	0
	PC12. Retrieve and/or point out documents that refer to health and safety in the workplace		5	0	5
	PC13. Use the various appropriate fire extinguishers on different types of fires correctly		10	5	5
	PC14. Demonstrate rescue techniques applied during fire hazard		10	5	5
	PC15. Demonstrate good housekeeping in order to prevent fire hazards		0	0	0



	PC16. Demonstrate the correct use of a fire extinguisher		5	0	5
	PC17. Demonstrate how to free a person from electrocution		5	0	5
	PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		10	5	5
	PC19. Demonstrate basic techniques of bandaging		5	0	5
	PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		10	5	5
	PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments		5	0	5
	PC22. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		5	0	5
	PC23. Demonstrate the artificial respiration and the CPR Process		5	0	5
	PC24. Participate in emergency procedures		5	0	5
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		10	5	5
	PC26. Demonstrate correct method to move injured people and others during an emergency		0	0	0
		<b>Total</b>	<b>150</b>	<b>45</b>	<b>105</b>
ISC/N0009: Work effectively with others	PC1. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	100	10	5	5
	PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt		10	5	5



PC3. Provide information to others clearly, at a pace and in a manner that helps them to understand	10	0	10
PC4. Display helpful behaviour by assisting others in performing tasks in a positive manner, where required and possible	10	5	5
PC5. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks	10	5	5
PC6. Display appropriate communication etiquette while working	10	0	10
PC7. Display active listening skills while interacting with others at work	10	0	10
PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism	10	5	5
PC9. Demonstrate responsible and disciplined behaviours at the workplace	15	5	10
PC10. Escalate grievances and problems to supervisor	5	0	5
<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>

