



Model Curriculum

Supervisor - Refractory Brick Laying

SECTOR: IRON & STEEL
SUB-SECTOR: STEEL

OCCUPATION: REFRACTORY MAINTENANCE
REF ID: ISC/Q1203
NSQF LEVEL: 5



  

Certificate

**CURRICULUM COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL
STANDARDS**

is hereby issued by the
INDIAN IRON AND STEEL SECTOR SKILL COUNCIL

for the
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Supervisor - Refractory Brick QP No. 'ISC/Q1203 NSQF Level 5'
Laying'

Date of Issuance: **December 22nd, 2015**
Valid up to: **December 21st, 2016**

** Valid up to the next review date of the Qualification Pack*


Authorised Signatory
(Indian Iron and Steel Sector Skill Council)



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Supervisor - Refractory Brick Laying

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Supervisor - Refractory Brick Laying”, in the “Iron & Steel” Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Supervisor - Refractory Brick Laying		
Qualification Pack Name & Reference ID.	Supervisor - Refractory Brick Laying ISC/Q1203		
Version No.	1.0	Version Update Date	01-04-2017
Pre-requisites to Training	Minimum qualification – B.Sc /Diploma Pass		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none"> • Understand the job & plans for execution • Allocate job, fixes target & provides support to team members • Supervise the job & review progress periodically • Use basic health and safety practices at the work place • Works effectively with others and manage team members 		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Supervisor - Refractory Brick Laying” Qualification Pack issued by “Indian Iron & Steel Sector Skill Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	Over view of Iron & Steel Industry Theory Duration (hh:mm) 04:00 Practical Duration (hh:mm) 00:00 Corresponding NOS Code	<ul style="list-style-type: none"> • Understanding Iron & steel industry • Understanding types of Iron & Steel Industry • Understanding products of Iron & Steel industry • Activities in Iron & Steel Industry 	PPTs of Iron and steel manufacturing, Charts showing the same
2	Occupational, Health and Safety (OHAS) Theory Duration (hh:mm) 08:00 Practical Duration	<ul style="list-style-type: none"> • Understanding the Occupational health & Safety • Understand What is hazard • Documentation for Health and safety • Working at Heights, confined spaces • Remedies for fire at work place 	PPTs for OHAS related to Job Role, Display Material for PPEs related to Job Role, Safety Material



Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 12:00 Corresponding NOS Code ISC/N0008		
3	5S & House keeping Theory Duration (hh:mm) 06:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code ISC/N0008	<ul style="list-style-type: none"> • Identification of bottlenecks in functioning of work place • Various methods of housekeeping both pre-work & post-work as well 	PPTs of 5S, Display Charts of 5S, Audit Checklists of 5S
4	Understand the job & plans for execution Theory Duration (hh:mm) 25:00 Practical Duration (hh:mm) 70:00 Corresponding NOS Code ISC/N1205	<ul style="list-style-type: none"> • Study the job (new bricking / repair / replacement bricking) by drawings and specifications • Ensure availability of resources for execution • Plan the execution post assessing the available manpower, provisions and time 	PPTs for various types of drawings, Brick Cutting Machine, Mortar mixers, tools & tackles, Pneumatic equipment, shovels, trowels, mallets, material handling equipment
5	Allocate job, fixes target & provides support to team members Theory Duration (hh:mm) 30:00 Practical Duration (hh:mm) 80:00 Corresponding NOS Code ISC/N1206	<ul style="list-style-type: none"> • Allocate the brick-laying job to the competent brick-layer • Provide infrastructural support to the team 	Brick Cutting Machine, Mortar mixers, tools & tackles, Pneumatic equipment, shovels, trowels, mallets, material handling equipment
6	Supervise the job & review progress periodically Theory Duration (hh:mm) 25:00	<ul style="list-style-type: none"> • Supervise the actual brick-laying job on-site • Review the job time to time with the workforce/workers 	Brick Cutting Machine, Mortar mixers, tools & tackles, Pneumatic equipment, shovels, trowels,



Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Practical Duration (hh:mm) 90:00</p> <p>Corresponding NOS Code ISC/N1207</p>		mallets, material handling equipment
7	<p>Use basic health and safety practices at the workplace</p> <p>Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 08:00</p> <p>Corresponding NOS Code ISC/N0008</p>	<ul style="list-style-type: none"> Health and safety procedures Fire safety procedures Emergencies, rescue and first aid procedures 	PPE, Different Type of Safety Sign, First Aid Box, Safety instrument and clothing, Step Ladder, Sample Accident reports, Fire Extinguishers, Items required for fire extinguisher and fire Safety
8	<p>Work effectively with others and manage team members</p> <p>Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 08:00</p> <p>Corresponding NOS Code ISC/N0096</p>	<ul style="list-style-type: none"> Communicate effectively with team members, co-workers and supervisors <ul style="list-style-type: none"> Encourage friendly working environment Use appropriate titles and terms of respect Follow code of conduct and ethics as applicable Follow organisation specific policies Demonstrate effective behaviours for team work Ensure engagement of team members through on-the job handholding & support 	Communication skills PPTs, Posters Team management posters
	<p>Total Duration</p> <p>Theory Duration 112:00</p> <p>Practical Duration 278:00</p>	<p>Unique Equipment Required:</p> <ul style="list-style-type: none"> Mechanical Drawings, Blueprints, Basic Tools and Equipment's, measuring tools& precision measurement tools, Tools and tackles Material and Equipment for cleaning, lifting machines PPE, Safety Sign, First Aid Box, Fire Extinguishers 	

Grand Total Course Duration: **390Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Indian Iron and Steel Sector Skills Council](#))



Trainer Prerequisites for Job role: “Supervisor - Refractory Brick Laying” mapped to Qualification Pack: “ISC/Q1203”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ISC/Q1203”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Min. ITI pass and preferably CTI/ATI cleared/ Diploma Mechanical
4a	Domain Certification	Certified for Job Role: “Supervisor - Refractory Brick Laying” mapped to QP: “ISC/Q1203”. Minimum accepted score is 80%
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/1402”. Minimum accepted score is 80%
5	Experience	Min. 5 years industry experience and minimum 2 years’ experience as Trained or untrained for same Job Role/ Trade



Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Supervisor - Refractory Brick Laying
Qualification Pack	ISC/Q1203
Sector Skill Council	Indian Iron & Steel Sector Skill Council

Sr. No.	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 centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on these 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.

Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
ISC/N1205: Understand the job & plans for execution	PC1. Read the engineering drawing(s) for the brick-laying job & understand the specifications thereof, like materials (bricks/blocks/mortar) required, nature of the bricking (repair/replace/build) to be performed	150	31	30	1
	PC2. sure resources & systems used to carry out the refractory storage, handling, installation and disposal of waste with zero harm to personnel & the environment		19	10	9
	PC3. Oversee the receipt and storage of refractory materials, monitor and review the systems for material tracking and consumption reporting		21	20	1



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC4. Coordinate the timely delivery of refractory materials to site, storage and preservation processes and material handover to worker		9	0	9
	PC5. Prepare requisitions for procurement of resources in Economic Ordering Quantity (EOQ) for the job to proceed without delay		11	10	1
	PC6. Plan the complete brick laying work, keeping in view the manpower available, materials, tools & tackles required and time available in hand		39	10	29
	PC7. Use his judgment to distribute the resources available depending on the criticality of the job in hand and understand the effect of delay in the process of execution		20	10	10
	NOS Total Marks	Total	150	90	60
ISC/N1206 Allocate job, fixes target & provides support to team members	PC1. Allocate the job, explaining the special points to be followed during execution	200	31	30	1
	PC2. Set the time limit for completion of the job		29	10	9
	PC3. Provide tools & tackles, ensuring they are in usable condition		20	10	10
	PC4. Ensure timely supply of raw materials (e.g. bricks/blocks, mortar), along with safety gears to the workers		20	0	20
	PC5. Ensure proper storage and preservation of tools, tackles and raw materials		20	0	20
	PC6. Set up, operate, repair machinery & equipment to get the job done		60	0	60



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC7. Observe operation of machinery and equipment, to detect malfunctions		15	5	10
	PC8. Make requisitions for tools, tackles, raw materials & follow up		15	0	15
	NOS Total Marks	Total	200	55	145
ISC/N1207: Supervise the job & review progress periodically	PC1. Explain to and guide the worker on different kinds of brick-laying job like lining or relining with fire-bricks, acid resistant bricks, refractory blocks, arch-building in installations like kilns, boilers, furnaces, hot air generators, chimneys etc.	400	100	50	50
	PC2. Guide, handle, install and conduct pre-commissioning dry out of all refractories during Construction/Repair		150	20	130
	PC3. Review it every day on the shop floor with the work-force		50	0	50
	PC4. Review & coordinate the refractory installation duration, sequencing and criticality with the planning group, at a pre-defined frequency		50	0	50
	PC5. Keep the concerned department informed about the actual progress and any problem therein that might delay the process		50	0	50
	NOS Total Marks	Total	400	70	330
ISC/N0008: Use basic health and safety practices	PC1. Use protective clothing/equipment for specific tasks and work conditions	150	10	5	5



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
at the workplace	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		1	0	1
	PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace		9	5	4
	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		1	0	1
	PC11. Identify common hazard signs displayed in various areas		6	5	1



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC12. Retrieve and/or point out documents that refer to health and safety in the workplace		4	0	4
	PC13. Use the various appropriate fire extinguishers on different types of fires correctly		9	5	4
	PC14. Demonstrate rescue techniques applied during fire hazard		10	5	5
	PC15. Demonstrate good housekeeping in order to prevent fire hazards		1	0	1
	PC16. Demonstrate the correct use of a fire extinguisher		4	0	4
	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



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	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		9	5	4
	PC26. Demonstrate correct method to move injured people and others during an emergency		1	0	1
	NOS Total Marks	Total	150	45	105
ISC/N0096: Work effectively with others and manage team members	PC1. Accurately receive, absorb and share information and instructions from the supervisor and fellow workers, getting clarification where required	100	5	0	5
	PC2. Display appropriate communication etiquette while working		10	0	10
	PC3. Display active listening skills while interacting with others at work		10	0	10
	PC4. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		5	0	5
	PC5. Display helpful behaviour by assisting others in performing tasks in effective manner		10	0	10



Assessment outcome (nos)	Assessment criteria	Total marks	Out of	Marks allocation	
				Theory	Skills practical
	PC6. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks		10	0	10
	PC7. Demonstrate responsible and disciplined behaviours at the workplace		5	0	5
	PC8. Escalate grievances and problems to superiors		5	0	5
	PC9. Communicate day-to-day objectives, instructions etc. to team members		15	5	10
	PC10. Guide the team members to manage day-to-day issues at work		5	0	5
	PC11. Gather concerns, feedback from team members and convey them to appropriate authorities		15	5	10
	PC12. Escalate grievances and problems to superiors		5	0	5
	NOS Total Marks	Total	100	10	90
	Grand Total	1000	1000	270	730
	Percentage Weightage:			50%	50%
	Minimum Pass% to qualify (aggregate):			60%	