



Model Curriculum

Senior Technician - Prestress

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Prestressing
REF ID: CON/Q0803
NSQF LEVEL: 6





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Senior Technician – Prestress

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Senior Technician – Prestress”, in the Construction Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Senior Technician – Prestress		
Qualification Pack Name & Reference ID. ID	CON/Q0803		
Version No.	1.0	Version Update Date	23-08-2017
Pre-requisites to Training	Preferably 12 th standard with 15 years site experience in same occupation for trained worker/ 5 years site experience as a certified Technician Prestress for Non trained worker		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Ensure installation of embedded components is as per drawing: - Check reinforcement steel works, sheathing ducts, supports, location and fixing of embedded anchorage guides as per drawing. • Monitor storage and laying of tendons: - Check and ensure the tendon storage area is constructed as per specified storage norms & monitor laying of tendons as per drawing/ specification. • Carry out stressing of tendons using jacks: - Carry out stressing operation using hydraulic jacks. • Supervise, monitor and evaluate performance of subordinates at workplace: - Monitor all construction work activities performed by subordinates, evaluate their performance and ensure strict adherence to quality instructions and timelines as per organizational policies and procedures. • Manage workplace for safe and healthy work environment: - Ensure healthy and safe working environment for subordinates, effective implementation of health, safety and environment policies and procedures 		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Senior Technician – Prestress” Qualification Pack issued by “Construction Skill Development Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 00:00</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Introduction to the pre stressing occupation • Roles and responsibilities of senior technician – Prestress. • Overview of functions and tasks performed by senior technician – Prestress. • Expected personal attributes from the job role • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions for senior technician – Prestress. 	<p>Classroom Requirement</p> <ol style="list-style-type: none"> 1. Classroom of 30 students capacity 2. Black/White board 3. Projector/LED Monitor 4. Computer 5. Trade specific charts and other teaching aids
2	<p>Ensure installation of embedded components as per drawing</p> <p>Theory Duration (hh:mm) 108:00</p> <p>Practical Duration (Demonstration) (hh:mm) 40:00</p> <p>Practical Duration - On Job Training (hh:mm) 68:00(OJT)</p> <p>Corresponding NOS Code :- CON/N0807</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Basic mathematical calculations related to linear, areal, volumetric measurement and conversion of units • Concept of RCC drawings, reinforcement work, standard laying method of sheathing ducts & stressing procedure. • Methodology of positioning and alignment of ducts as per drawing and specification/ details of ducts provided. • Applicable limit of tolerance for fabrication and positioning of ducts and duct supports • Checks and inspections required for duct support, fixing anchorages and other stressing work. • Pre-stressing details/ specifications as provided by the designer. • Dos and Don'ts applicable to laying sheathing ducts and duct supports as agreed work method statement • Method statement required for inserting grout vents to the sheathing ducts as their locking as per specified quality norms • Dimension and location of templates for anchorage, specification of anchorage 	<p>Components required:</p> <ol style="list-style-type: none"> 1. Bearing plate 2. Tube unit 3. Wedges 4. Trumpet 5. Bearing cone 6. Strand coupler 7. Sheathing couplers 8. Jack Locking plate <p>Equipment required:</p> <ol style="list-style-type: none"> 1. Chain pulley arrangement <p>Apparatus & instruments:</p> <ol style="list-style-type: none"> 1. De-coiling setup <p>Hand/ Power tools:</p> <ol style="list-style-type: none"> 1. Spanner 2. Power cutting machine.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>and details of fixing anchorages as per drawing.</p> <ul style="list-style-type: none"> • Application of sealants and their applications to pre-stressing ducts • Requirement of survey points and their uses for marking location of embedded components <p>Practical:</p> <ul style="list-style-type: none"> • Check/ inspect reinforcement bars in anchorage zone with respect to drawing in the aspects of diameter, shape, dimension, bends, number, spacing, clear cover & tying of bar • Read and interpret applicable drawing, specification to determine details of works and applicable limit of tolerance. • Check and ensure proper survey points, level markings are provided at specified locations • Inspect and cross check locations of markings with respect to the established survey points/ levels • Check/ inspect reinforcement bars, duct supports and sheathing ducts throughout the span of laying with respect to drawing in the aspects of duct supports at specified interval as per applicable planning, • Check and ensure the location of sleeves for gout vents and ensure that the sleeves are closed against dust/ moisture by using suitable material • Carry out necessary measurements to ascertain location of embedded components • Able to check and ensure dimensions of templates and ensure their fixing also able to ensure alignment, fixing and elevation of the anchorage guide cones are as per marking/instruction/ drawing. • check/ensure/instruct for proper connection & sealant is applied to the joint of anchorage guide cones and ducts 	<p>3. Power drilling machine</p> <p>Measuring tools:</p> <ol style="list-style-type: none"> 1. Measuring Tape 2. Steel scale 3. Stopwatch 4. Plumb bob 5. Sprit level <p>Material & consumables required:</p> <ol style="list-style-type: none"> 1. HT strands/ tendon 2. Sheathing pipes/ ducts 3. Marker pen 4. Line thread 5. Spongy 6. Binding wire 7. Self-adhesive tape <p>Safety instruments:</p> <ol style="list-style-type: none"> 1. Safety Helmets 2. Safety goggles 3. Hand gloves 4. Safety Shoes (Assorted size) 5. Ear Plug 6. Nose mask 7. Face mask 8. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> ensure locking of guides cones are rigid and water tight 	
3	<p>Monitor storage and laying of tendons</p> <p>Theory Duration (hh:mm) 108:00</p> <p>Practical Duration (Demonstration) (hh:mm) 40:00</p> <p>Practical Duration- On Job Training (hh:mm) 68:00 (OJT)</p> <p>Corresponding NOS Code :- CON/N0808</p>	<p>Theory:</p> <ul style="list-style-type: none"> type/ specifications & grade of tendons used in pre-stressing works Methods of interpreting material testing certificate standard procedure of handling, uncoiling and cutting tendons Standard storing norms applicable for tendons Identify tendons by labels, tags etc. provided by manufacturer Properties of tendons, their elongation and yield point Factors which is harmful for tendons Laying schedule of tendons Calculation of cutting length of tendons from drawing/ schedule visual checks required to the tendons to determine their usability standard cutting method used for cutting of stressed tendons specifications/properties of cutting power tools used for cutting the tendons standard procedure of laying tendons through sheathing ducts Method of forming bulbs in tendon cables using hand/ power tools checking/inspection method for ensuring sheathing ducts are not damaged, cracked or sheathing joints are intact while placing tendons through the same Standard procedure for fixing grips, bearing plates and anchorage cones. <p>Practical:</p> <ul style="list-style-type: none"> Check and ensure that proper manufacturers supplied test certificates and identification labels/ tags are fixed with every tendon coil. 	<p>Material & consumables required:</p> <ol style="list-style-type: none"> HT strands/ tendon Sheathing pipes/ ducts Marker pen <p>Measuring tools:</p> <ol style="list-style-type: none"> Measuring Tape Steel scale <p>Safety instruments:</p> <ol style="list-style-type: none"> Safety Helmets Hand gloves Safety Shoes (Assorted size) Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • Ensure that tendons are being handled with applicable norms during storing, uncoiling, cutting and laying. • Check & ensure that the storage area has adequate ventilation to prevent condensation. • Check and inspect tendons visually for corrosion, breakages or any visible deviation which would restrict its usability • Read and interpret drawing and specification to determine cutting length of tendons and prepare suitable chart/ table for cutting • Ensure tendons are cut using appropriate cutting tools and having smooth cut edges • Able to check & ensure tendons of appropriate specifications are passed through designated ducts and anchorages • check and ensure the sheathing ducts are not damaged or dislocated while passing tendons through the same • Monitor bulb preparation of tendons and check bulb dimensions using appropriate measuring tools • check & ensure tendons at blind ends for specified anchorage • check threading and extension of tendons through the ducts • check proper fixing of grips, bearing plates to anchorage cones and pre stressing tendons 	
4	<p>Carry out stressing of tendons using jacks</p> <p>Theory Duration (hh:mm) 200:00</p> <p>Practical Duration (Demonstration) (hh:mm) (60:00 hrs.)</p>	<p>Theory:</p> <ul style="list-style-type: none"> • Calibration & other checks of the jacks. • Documentation of repairing and maintenance of the stressing jacks and their accessories • Standard method used for marking of tendons using suitable marking tools • checks required for the pre stressing hydraulic system as per standard procedure to make the system free from air bubble or any leakage 	<p>Components required:</p> <ol style="list-style-type: none"> 1. Bearing plate 2. Tube unit 3. Wedges 4. Trumpet 5. Bearing cone 6. Strand coupler 7. Sheathing couplers 8. Jack Locking plate

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Practical Duration- On job training (hh:mm) 140:00</p> <p>Corresponding NOS Code :- CON/N0809</p>	<ul style="list-style-type: none"> Standard procedure of use for operating pre-stressing hydraulic jacks & pumps. Sequential steps involved in pre-stressing operations procedure Safety precautions to be taken while operating jacks and tendons are in elongation Specified limit of tolerance applicable to applied stressing load and elongation of tendons Measurement of elongation of tendons by using appropriate measuring instruments <p>Practical:</p> <ul style="list-style-type: none"> Check and ensure stressing jacks, pressure gauges etc. visually for any visible damages such as, dislocation of accessories, breakage/ cracks etc. Check and ensure the proper calibration of jacks, pressure gauges which are fixed with the jacks. Check and ensure stressing jacks and power packs are working within the tolerance limit. Ensure proper placing & marking of tendons to be done as per using appropriate tool. Ensure the proper fixing of bearing plates & jacks as per required setup. Check proper tightening of grips & ensure that the tendons are secured against slipping while in tension Check and ensure hydraulic systems and oil connections are in good working conditions Read and interpret stressing drawing, stressing schedule, load application schedules carry out marking of tendons using paint or suitable markings to stress out elongation during stressing Apply initial stressing to the tendons to remove slackness of tendons and jacks as per applicability of work method 	<p>Apparatus & instruments:</p> <ol style="list-style-type: none"> De-coiling setup <p>Equipment required:</p> <ol style="list-style-type: none"> Hydraulic jack Hydraulic pump Chain pulley arrangement <p>Hand/ Power tools:</p> <ol style="list-style-type: none"> Spanner Power cutting machine Power drilling machine <p>Measuring tools:</p> <ol style="list-style-type: none"> Measuring Tape Steel scale Thermometer Stopwatch Plumb bob Spirit level <p>Material & consumables required:</p> <ol style="list-style-type: none"> HT strands/ tendon Sheathing pipes/ ducts Marker pen Line thread Hydraulic oil

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Control application of loads as per stressing schedule and ensure working method Able to ensure the increment of tensile load is graduated as per schedule and thus evenly distributed to the tendons Monitor gauge pressure and elongation of tendons under stressing Ensure that desired elongation has been achieved to each tendons as per stressing schedule check the hose pipes and it's end fittings are intact and are connected correctly with the pump & jack Demonstrate communicate/ provide signals with co-workers/ superiors to maintain synchronization while multiple stressing Equipments are in action Ensure sheathing/ tendon ducts are closed in all aspect after completion of stressing, against ingress of dust, moisture or foreign contaminants Ensure all faults, deviations and alterations to the stressing system are brought to the notice of concerned authority as per applicable reporting procedure A ensure stressing platform/ gantry is safely erected and stable during stressing/ jack operating activities 	<p><u>Safety instruments:</u></p> <ol style="list-style-type: none"> Safety Helmets Safety goggles Hand gloves Safety Shoes (Assorted size) Ear Plug Nose mask Face mask Board of Safety instructions
5	<p>Supervise, monitor and evaluate performance of subordinates at workplace</p> <p>Theory Duration (hh:mm) 40:00</p> <p>Practical Duration- On job training (hh:mm) 40:00</p> <p>Corresponding NOS Code :- CON/N8003</p>	<p><u>Theory:-</u> standard specifications and procedures involved in pre stressing operations</p> <ul style="list-style-type: none"> Standard correct way of use of materials , tools, tackles and equipment policies, procedures and work targets for performance evaluation and appraisals organizational policies, procedures and protocol for smooth completion of work at the respective workplace <p><u>Practical :-</u></p> <ul style="list-style-type: none"> Calculate expected productivity requirement to meet assigned task and deadlines for Prestress ing work Calculate man, material and tools requirement in Prestress ing work 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Demonstrate the progressive checking of stressing and grouting work to ensure quality outcome Carryout final check of the work performed by the sub-ordinates to meet drawing requirement 	
6	<p>Manage workplace for safe and healthy work environment</p> <p>Theory Duration (hh:mm) 40:00</p> <p>Practical Duration- On job training (hh:mm) 40:00</p> <p>Corresponding NOS Code :- CON/N9002</p>	<p>Theory :-</p> <ul style="list-style-type: none"> Hazards at workplace and associated with Prestressing operations Safe handling and stacking of materials used in Prestressing work Proper housekeeping at work place Safe work practices to be followed while carry out Prestressing operations Safety PPEs to be used while carryout Prestressing operations Safe handling of tools and tackles relevant to stressing and grouting works Reporting procedures in case of safety hazards at site Reporting procedure in case of emergency Methodology of using Fire extinguishers based on the types of fire <p>Practical :-</p> <ul style="list-style-type: none"> Demonstrate identification of hazards involved in Prestressing operations Demonstrate standards safety practices while carryout activities of Prestressing Demonstrate standard housekeeping procedures Ensure/check/inspect proper handling and stacking of materials at workplace/stores List out possible hazards associated with stressing and grouting work and in general in construction sites Demonstrate correct uses of tools and tackles Maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction form safety personals 	<p>Safety instruments:</p> <ol style="list-style-type: none"> Safety Helmets Safety goggles Hand gloves Safety Shoes (Assorted size) Ear Plug Nose mask Face mask Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Demonstrate proper reporting procedure to the concerned authority in emergency situations Demonstrate the use Fire extinguishers based on the types of fire 	
	<p>Total Duration</p> <p>Theory Duration 504:00 Hrs.</p> <p>Practical Duration 140:00 Hrs.</p> <p>On job training- (OJT) 356:00</p>	<p>Classroom Requirement (for 30 students) Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts and other teaching aids</p> <p>Components required: Bearing plate, Tube unit, Wedges, Trumpet, Bearing cone, Strand co</p> <p>Equipment required: Hydraulic jack, Hydraulic pump, Grouting pump, Chain pulley arrangement</p> <p>Apparatus & instruments: Cube mould, Hydrometer, Flow cone apparatus, De-coiling setup</p> <p>Hand/ Power tools: Spanner, Power cutting machine, Power drilling machine</p> <p>Measuring tools: Measuring Tape, Steel scale, Thermometer, Stopwatch, Plumb bob, Sprit level</p> <p>Material & consumables required: Cement, Water, HT strands/ tendon, Sheathing pipes/ ducts, Grout vent, Grout cap, Hosepipes, Marker pen, Line thread, Spongy, Binding wire, Hydraulic oil, Self-adhesive tape, Petrol, Admixture</p> <p>Safety instruments: Safety Helmets, Safety goggles, Hand gloves, Safety Shoes (Assorted size), Ear Plug, Nose mask, Face mask, Board of Safety instructions</p>	

Grand Total Course Duration: **1000 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by Construction Skill Development Council of India)

Trainer Prerequisites for Job role: “Senior Technician - Prestress” mapped to Qualification Pack: “CON/Q0803, v1.0”

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q0803”.
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	ITI/12th
4a	Domain Certification	Trainer/Assessor-50% in each NOS & 80% overall, Lead trainer/ Lead Assessors- 50% in each NOS and overall 90%
4b	Platform Certification	Trainer/Assessor-80% in each NOS and Lead trainer/Lead Assessors-90% in each NOS
5	Experience	i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12 th pass minimum eight years of field experience and preferably two years of teaching Experience.



CRITERIA FOR ASSESSMENT OF TRAINEES

<u>Job Role</u>	Senior Technician - Prestress
<u>Qualification Pack</u>	CON/Q0803
<u>Sector Skill Council</u>	Construction

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 knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.
7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8. After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
9. 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 within the specified timeframe set by SSC.
10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

Assessment outcomes	Assessment Criteria for outcomes	Total Mark	Marks Allocation		
			Out Of	Theory	Skills Practical
CON/N0804: Fix anchorage and lay ducts for installing pre-stressing systems	PC1. carry out necessary measurements to mark location of inserts on the formwork shutters	100	4	1	3
	PC2. mark location of the inserts, embedded components using appropriate marking tools/ paints		4	1	3
	PC3. cut opening in the shutter panels by using power cutting tools		5	2	3
	PC4. make wooden templates as pockets as per drawing within dimensional tolerance limit for fixing guide cones		5	2	3
	PC5. cut holes/ grooves to the templates as per guide cone's dimension wooden appropriate hand and power tools		5	1.5	3.5
	PC6. check shape of reinforcement bars, centre to centre distance, covers, tying of bars at the location of fixing anchorages in reference to applicable drawing		5	1.5	3.5
	PC7. fix pockets, anchorage guide cones, inserts to the formwork shutters as per marking by using suitable hand tools		5	1.5	3.5
	PC8. fix foam sheets, stoppers to the inserts for making pockets as per applicability		5	1.5	3.5
	PC9. carry out suitable adjustments to the anchorage cones to maintain its alignment and level as per drawing		5	1.5	3.5
	PC10. ensure water tightness and leakage through the embedded components		4	1	3
	PC11. carry out measurement of distance among multiple anchorage cones to cross check the locations as per drawing		5	1.5	3.5
	PC12. use appropriate PPEs while working at height/ night		4	1	3
	PC13. check sheathing ducts visually for diameter, corrosion, distortion and cracks prior to laying		5	1.5	3.5
	PC14. check duct laying location for completion of preparatory works (reinforcement/ shuttering works, cleaning etc.) prior to start placing sheathing ducts		5	1.5	3.5
	PC15. place tendon/ duct supports at specified interval		5	1.5	3.5
	PC16. lock supports by tying with reinforcement or by suitable means as per approved method		5	1.5	3.5
	PC17. ensure supports are rigidly fixed and secured against movements		5	1.5	3.5
	PC18. lay ducts through the supports and join the duct terminals to the anchorage guide cones as per drawing/ specification		5	1.5	3.5
	PC19. tie sheathing ducts to the supports ensuring adequate tightness and rigidity		5	1.5	3.5
	PC20. connect sheathing ducts by screwing or sealant tapes as per applicability ensuring water tightness		5	1.5	3.5
	PC21. apply appropriate sealant to the joint of duct and anchorage cone		4	1	3

		Total	100	30	70
CON/N0805: Lay pre-stressing tendons through anchorages and bearing plates	PC1. check exposed tendons for corrosion and any visible deviation	100	5	1.5	3.5
	PC2. monitor uncoiling and expansion of tendons		5	1.5	3.5
	PC3. place one or multiple tendons together and fix them at appropriate location		5	1.5	3.5
	PC4. carry out necessary measurements and mark required cutting lengths using appropriate marking tools		8	2.5	5.5
	PC5. cut tendons using abrasive cutting tools		5	1.5	3.5
	PC6. ensure smooth edge of tendons after completion of cutting		5	1.5	3.5
	PC7. use appropriate PPEs while unwinding coils and carry out cutting works		5	1.5	3.5
	PC8. pull and push tendons through sheathing ducts		5	1.5	3.5
	PC9. ensure no harm is caused to sheathing ducts during insertion and passing of tendons through the same		5	1.5	3.5
	PC10. place specified number of tendons of specified grade through each duct		6	1.5	4.5
	PC11. carry out threading of tendons using appropriate threading tools as and when necessary		8	2.5	5.5
	PC12. pass the tendons through anchorage cones and bearing plates and expose them out of the ducts		5	1.5	3.5
	PC13. insert the 'Bearing Ring' over the 'Bearing Plate' at both ends of the Tendon and press to fully to sit properly over the 'Guide Ring'		8	2.5	5.5
	PC14. insert the 'Pressure Plate' as per the orientation of the Bearing Plate Hole		5	1.5	3.5
	PC15. mount steel grips to the bearing plate holes and tighten them in prior to start tensioning		5	1.5	3.5
	PC16. prepare bulbs in tendon terminals using appropriate tools, in case of laying in blind (dead) end anchorage zone		5	1.5	3.5
	PC17. lock tendons by putting swaged sleeves and distribution plates in case of blind end anchorage (if applicable)		5	1.5	3.5
	PC18. close all the opening in ducts by using suitable/ approved material as per instruction		5	1.5	3.5
	Total	100	30	70	
CON/N 0806: Assist in stressing of tendons and monitor pressure grouting works	PC1. check stressing equipments(jacks/ power packs) visually for any visible damage or leakage prior to shifting	100	6	1	5
	PC2. shift stressing jacks, power packs and their accessories to the appropriate location of stressing		6	1	5
	PC3. erect signage and barricading to the pre-stressing points to restrict entry of unauthorized person or vehicle		6	2	4
	PC4. pass tendons through the jack as per instruction		6	2	4

	PC5. lock the tendons by using master grips prior to start stressing		6	2	4
	PC6. connect power pack, hydraulic jack through hose		6	2	4
	PC7. connect pre-stressing jacks and power pack units to electrical outlets		8	2	6
	PC8. monitor storing and stacking of grouting materials from store to work site		6	2	4
	PC9. check grouting material visually to ensure their usability		6	2	4
	PC10. check grouting pump visually for visible damages and dislocation/ breakage of accessories		6	2	4
	PC11. monitor fixing of grouting nozzles as per specification		6	2	4
	PC12. check connections of grouting nozzle and grouting hose for adequate tightness		6	2	4
	PC13. check and ensure grouting vent are closed appropriately using approved material against ingress of dust, moisture etc.		6	2	4
	PC14. ensure grouting materials are mixed in appropriate proportion		6	2	4
	PC15. monitor grout is applied in specified pressure by using appropriate grouting pump		8	2	6
	PC16. check pressure gauge and monitor pressure of grouting		6	2	4
		Total	100	30	70
CON/N8001: Work effectively in a team to deliver desired results at the workplace	PC1. pass on work related information/ requirement clearly to the team members	100	10	3	7
	PC2. inform co-workers and superiors about any kind of deviations from work		5	1.5	3.5
	PC3. address the problems effectively and report if required to immediate supervisor appropriately		5	1.5	3.5
	PC4. receive instructions clearly from superiors and respond effectively on same		5	1.5	3.5
	PC5. communicate to team members/subordinates for appropriate work technique and method		5	1.5	3.5
	PC6. seek clarification and advice as per requirement and applicability		10	3	7
	PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		30	9	21
	PC8. work together with co-workers in a synchronized manner		30	9	21
	Total	100	30	70	
CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	100	10	3	7
	PC2. plan activities as per schedule and sequence		10	3	7
	PC3. provide guidance to the subordinates to obtain desired outcome		10	3	7
	PC4. plan housekeeping activities prior to and post completion of work		10	3	7
	PC5. list and arrange required resources prior to commencement of work		10	3	7
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		10	3	7

	PC7. complete the work with allocated resources		10	3	7
	PC8. engage allocated manpower in an appropriate manner		10	3	7
	PC9. use resources in an optimum manner to avoid any unnecessary wastage		5	1.5	3.5
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		5	1.5	3.5
	PC11. organize work output, materials used, tools and tackles deployed,		5	1.5	3.5
	PC12. processes adopted to be in line with the specified standards and instructions		5	1.5	3.5
		Total	100	30	70
CON/N9001: Work according to personal health, safety and environment protocol at construction site	PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority	100	5	1.5	3.5
	PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities		5	1.5	3.5
	PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable		10	3	7
	PC4. participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site		5	1.5	3.5
	PC5. identify near miss , unsafe condition and unsafe act		5	1.5	3.5
	PC6. use appropriate Personal Protective Equipment (PPE) as per work requirements including: • Head Protection (Helmets) • Ear protection • Fall Protection • Foot Protection • Face and Eye Protection • Hand and Body Protection • Respiratory Protection (if required)		10	3	7
	PC7. handle all required tools, tackles , materials & equipment safely		5	1.5	3.5
	PC8. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines		5	1.5	3.5
	PC9. install and apply properly all safety equipment as instructed		15	4.5	10.5
	PC10. follow safety protocol and practices as laid down by site EHS department		15	4.5	10.5
	PC11. collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes		10	3	7
	PC12. apply ergonomic principles wherever required		10	3	7
			Total	100	30