Qualification Pack

Assistant Electrician

QP Code: CON/Q0602

Version: 2.0

NSQF Level: 3

Construction Skill Development Council of India || Construction Skill Development CPB 103 & 104 (1st Floor),Block 4B,DLF Corporate Park,Phase III,MG Road,Gurgaon-122002
Telephone:0124-4513915to 18

Contents

CON/Q0602: Assistant Electrician

Brief Job Description

Assistant Electrician assists the electrician in electrical work for the installation, repair, and maintenance of temporary LV electrical connections in the construction sites and permanent connections at residential and commercial buildings. The individual is engaged in laying conduits for LV single phase wiring.

Personal Attributes

The individual is expected to be physically fit and should be able to work across various locations in extreme weather/site conditions. The person should be team-oriented and safety-driven.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. CON/N0602: Handle hand and power tools relevant to construction electrical works
2. CON/N0603: Install temporary lighting arrangement at construction sites
3. CON/N0604: Assist in LV(low voltage) electrical wiring at permanent structures
4. CON/N0605: Assemble, install and maintain temporary LV electrical panels (distribution boards) at construction site
5. CON/N8001: Work effectively in a team to deliver desired results at the workplace
6. CON/N8002: Plan and organize work to meet expected outcomes
7. CON/N9001: Work according to personal health, safety and environment protocols at construction site

Qualification Pack (QP) Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7411.0100

Minimum Educational Qualification & Experience	10th Class with 5-10 Years of experience For Non Trained Worker, minimum 5 years experience in same occupation OR 10th Class with 3-5 Years of experience Minimum 3 years experience as a certified Helper Electrician NSQF Level 2
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NIL
Minimum Job Entry Age	18 Years
Last Reviewed On	20/01/2021
Next Review Date	20/01/2025
Deactivation Date	20/01/2025
NSQC Approval Date	
Version	2.0

CON/N0602: Handle hand and power tools relevant to construction electrical works

Description

This unit describes the knowledge and the skills required to select and use hand,power tools and electrical devices relevant to construction electrical works

Scope

The scope covers the following :

- Handle hand/power tools for electrical works.

Elements and Performance Criteria

Handle hand/power tools for electrical works.

To be competent, the user/individual on the job must be able to:

PC1. perform basic checks on power tools prior to use

PC2. handle hand/power tools for establishing/ terminating electrical connections as per requirement

PC3. use appropriate tools to trace out short circuits/faults and leakages in electrical wiring

PC4. use measuring instruments to measure size and dimension of wires, conduits as per electrical installation or maintenance work requirement

PC5. use hand/ power tools to cut, and bend wire and conduit as per electrical installation or maintenance work requirement

PC6. use appropriate tools to splice wires by stripping insulation from terminal leads and twisting wires together

PC7. use appropriate hand/power tools to thread conduit ends, connect couplings, and fabricate and secure conduit support brackets

PC8. use appropriate electrical measuring devices like ammmeter, voltmeter,meggers etc.to examine electrical units for power interruptions/ continuity

PC9. use electrical devices such as starters, circuit breakers, relays as per equipment/ wiring installation rating or current rating

PC10. use diagnostic devices like multi-meter, tong tester, earth tester or similar devices to install, repair power connections

PC11. perform maintenance and upkeep of relevant tools and devices after use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for electrical works

KU2. safety rules and regulations for handling required electrical tools, equipment, and materials

KU3. importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms

KU4. service request procedures for tools, materials and equipment as per organizational norms

KU5. single line diagram (SLD), and schematics, wiring diagrams of electrical connections including wiring symbols

KU6. manufacturers guidelines/ specifications for use of hand and power tools and measuring devices

KU7. how to use hand, power tools to carry out required activities

KU8. how to use electrical measuring and diagnostic devices to undertake required tests to install and maintain electrical circuits

KU9. basic principles of electrical current flow, fundamental terms like resistance, temperature, cross-section of conductor and their relations

KU10. basic concept of AC and DC

KU11. electrical theory such as Ohms law, Amperes law, electromagnetic field and its effects

KU12. types of wires, cables based on their insulation and their respective uses in LV electrical works

KU13. features of resistors, switches, fuses and various circuit protection devices

KU14. selection, use and maintenance of electrical measuring devices like digitalmultimeter, earth tester, megger, tong tester etc.

KU15. operating characteristics and application of electrical test equipment

KU16. method to trace out short circuit, power interruption/ continuity usingdiagnostic tools/devices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least two languages, preferably the local language at the site and basic English

GS2. read SLDs, work, and safety-related instructions/signboards in one or more languages, preferably in the local language of the site

GS3. speak in one or more language, preferably one of the local language at site

GS4. listen attentively to instructions communicated by supervisors

GS5. communicate orally and efficiently with team members

GS6. resolve any conflict within the teammates

GS7. analyze the safety aspect of the workplace

GS8. plan work to achieve productivity as per the direction /close supervision of superiors

GS9. ensure work is done within time and as per desired quality based on instructions provided by superiors

GS10. evaluate the complexity of the tasks

GS11. identify any violation of safety norms during the work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Handle hand/power tools for electrical works.	**30**	**70**	**-**	**-**
PC1. perform basic checks on power tools prior to use	-	-	-	-
PC2. handle hand/power tools for establishing/ terminating electrical connections as per requirement	-	-	-	-
PC3. use appropriate tools to trace out short circuits/faults and leakages in electrical wiring	-	-	-	-
PC4. use measuring instruments to measure size and dimension of wires, conduits as per electrical installation or maintenance work requirement	-	-	-	-
PC5. use hand/ power tools to cut, and bend wire and conduit as per electrical installation or maintenance work requirement	-	-	-	-
PC6. use appropriate tools to splice wires by stripping insulation from terminal leads and twisting wires together	-	-	-	-
PC7. use appropriate hand/power tools to thread conduit ends, connect couplings, and fabricate and secure conduit support brackets	-	-	-	-
PC8. use appropriate electrical measuring devices like ammmeter, voltmeter,meggers etc.to examine electrical units for power interruptions/ continuity	-	-	-	-
PC9. use electrical devices such as starters, circuit breakers, relays as per equipment/ wiring installation rating or current rating	-	-	-	-
PC10. use diagnostic devices like multi-meter, tong tester, earth tester or similar devices to install, repair power connections	-	-	-	-
PC11. perform maintenance and upkeep of relevant tools and devices after use	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0602
NOS Name	Handle hand and power tools relevant to construction electrical works
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	20/01/2021
Next Review Date	20/01/2025
NSQC Clearance Date	

CON/N0603: Install temporary lighting arrangement at construction sites

Description

This unit describes the knowledge and the skills required to install temporary lighting arrangement at construction sites

Scope

The scope covers the following :

- Installation of temporary lighting arrangements at construction sites.
- Maintenance of installed lighting arrangement.

Elements and Performance Criteria

Installation of temporary lighting arrangement at construction sites.

To be competent, the user/individual on the job must be able to:

PC1. check cable, conduits , lights, sockets, temporary power distribution panels at power source and other required fixtures and accessories as per manufacturers guidelines and specification

PC2. lay cables through ducts or conduits, underground or through poles (overhead) as per plans and instructions

PC3. select the type and wattage of lights considering illumination requirement at worksite and install them at secured positions

PC4. fix lights and its accessories, brackets, bulkheads with screws and bolts or by other standard means, pull wires through conduit leading to connection boxes, temporary panels/ distribution boards or other temporary electrical terminals

PC5. extend/ join LV electrical cable using straight through joints, splicing them together and secure joints by applying PVC insulation tapes, caps or by other safe method as and when necessary

PC6. carry out termination of LV cables selecting the right method as per standard practice

PC7. work safely as per electrical safety guidelines provided by manufacturer, standard safety practice or organizational safety norms while establishing or disconnecting live electrical connections

PC8. upkeep of all relevant key electrical tools and fixtures

PC9. tag embedded, exposed electrical lines and other key equipment appropriately

Maintenance of installed lighting arrangements.

To be competent, the user/individual on the job must be able to:

PC10. shift light at various locations during construction activity as per requirement

PC11. repair and replace light arrangements as per instruction or requirement

PC12. replace burned out bulbs, light units and ballast in light fixtures as needed

PC13. carry out relevant tests to trace out power interruptions/ continuity at lighting arrangements

PC14. replace damaged cable, other relevant parts as and when necessary

PC15. replace faulty circuit breakers, fuses, switches, electrical and electronic components and wire as per requirement

PC16. perform preventive maintenance on diesel generators at site provided for temporary lighting (if any) at scheduled intervals as per direction of concerned authority

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for establishing temporary lighting arrangement at sites
KU2. safety rules and regulations for handling relevant tools, equipment, and materials for electrical works in accordance with organizational norms
KU3. importance of personal protection including the use of related safety gears & equipment
KU4. service request procedures for tools, materials and equipment as per organizational norms
KU5. wiring symbols of single and three phase electrical wiring
KU6. single line diagram (SLD), and schematics, wiring diagrams of electrical connections
KU7. manufacturers guidelines/ specifications for use of hand, power tools and measuring devices
KU8. how to use hand and power tools to carry out required activities
KU9. how to use electrical measuring/ diagnostic devices to undertake required tests to install and maintain electrical circuits
KU10. electrical units of measurements and their signs (such as Watt, Ampere, Ohm, volt etc.)
KU11. method of termination of wires and cables during installation and maintenance
KU12. basic principles for setting and maintaining temporary lighting and other related electrical systems under LV connection
KU13. basic electrical theory such as ohms law, amperes law, electromagnetic field and its effects
KU14. the basic concept of single-phase and three phase LV connections and their uses
KU15. the basic concept of AC and DC
KU16. basic characteristics of series, parallel and combination circuits and test to be performed in the same
KU17. basic concept of bridge circuits, their connections and tests to be carried out in the same
KU18. the basic principle of electrical current flow, fundamental terms like resistance, temperature, cross-section of conductors and their relations
KU19. types of cables based on their insulation, their respective uses in electrical works and selection of cable depending upon the circuit load requirement
KU20. the process of joining of LV cable by straight-through joints
KU21. properties of conductors, insulators, and semiconductors
KU22. selection, use and maintenance of electrical measuring devices like digital multimeter, earth tester, megger, tong tester etc
KU23. method to trace out short circuit, power interruption/ continuity using diagnostic tools/devices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least two languages, preferably the local language at the site and basic English
GS2. read SLDs, work and safety-related instructions/signboards in one or more languages, preferably in the local language of the site
GS3. speak in one or more language, preferably one of the local language at site
GS4. listen attentively to instructions communicated by supervisors
GS5. communicate orally and efficiently with team members
GS6. analyze the safety aspect of the workplace

GS7. resolve any conflict within the teammates

GS8. plan work to achieve productivity as per the direction /close supervision of superiors

GS9. ensure work is done within time and as per desired quality based on instructions provided by superiors

GS10. evaluate the complexity of the tasks

GS11. identify any violation of safety norms during the work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Installation of temporary lighting arrangement at construction sites.	**15**	**35**	**-**	**-**
PC1. check cable, conduits , lights, sockets, temporary power distribution panels at power source and other required fixtures and accessories as per manufacturers guidelines and specification	-	-	-	-
PC2. lay cables through ducts or conduits, underground or through poles (overhead) as per plans and instructions	-	-	-	-
PC3. select the type and wattage of lights considering illumination requirement at worksite and install them at secured positions	-	-	-	-
PC4. fix lights and its accessories, brackets, bulkheads with screws and bolts or by other standard means, pull wires through conduit leading to connection boxes, temporary panels/ distribution boards or other temporary electrical terminals	-	-	-	-
PC5. extend/ join LV electrical cable using straight through joints, splicing them together and secure joints by applying PVC insulation tapes, caps or by other safe method as and when necessary	-	-	-	-
PC6. carry out termination of LV cables selecting the right method as per standard practice	-	-	-	-
PC7. work safely as per electrical safety guidelines provided by manufacturer, standard safety practice or organizational safety norms while establishing or disconnecting live electrical connections	-	-	-	-
PC8. upkeep of all relevant key electrical tools and fixtures	-	-	-	-
PC9. tag embedded, exposed electrical lines and other key equipment appropriately	-	-	-	-
Maintenance of installed lighting arrangements.	**15**	**35**	**-**	**-**
PC10. shift light at various locations during construction activity as per requirement	-	-	-	-
PC11. repair and replace light arrangements as per instruction or requirement	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. replace burned out bulbs, light units and ballast in light fixtures as needed	-	-	-	-
PC13. carry out relevant tests to trace out power interruptions/ continuity at lighting arrangements	-	-	-	-
PC14. replace damaged cable, other relevant parts as and when necessary	-	-	-	-
PC15. replace faulty circuit breakers, fuses, switches, electrical and electronic components and wire as per requirement	-	-	-	-
PC16. perform preventive maintenance on diesel generators at site provided for temporary lighting (if any) at scheduled intervals as per direction of concerned authority	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0603
NOS Name	Install temporary lighting arrangement at construction sites
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	20/01/2021
Next Review Date	20/01/2025
NSQC Clearance Date	

CON/N0604: Assist in LV(low voltage) electrical wiring at permanent structures

Description

This unit describes the knowledge and the skills required to install LV electrical wiring at permanent structures

Scope

The scope covers the following :

- Provide assistance for LV electrical wiring work in permanent structures

Elements and Performance Criteria

Provide assistance for LV electrical wiring work in permanent structures

To be competent, the user/individual on the job must be able to:

PC1. select house wiring components (such as wires, flexible and rigid conduits, PVC raceways, wooden battens, clamps etc.) according to their specification / size

PC2. read and interpret single phase LV wiring diagram

PC3. carry out necessary linear measurement to cut, bend, join conduits and cables and use them as per requirement or instruction

PC4. lay conduit through RCC structures (slabs, beams, walls) or through chased wall (brick wall) surface as per instruction

PC5. lock conduit pipe in its location by means of clamp or other standard means as per instruction

PC6. pull, push wires through conduits in order to expose them at desired locations as per requirement

PC7. perform drilling and cutting using appropriate tools as per requirement

PC8. handle ,shift and assist in fixing electrical fixtures and fittings as per instructions

PC9. carry out termination of cables safely as per instruction

PC10. test electrical circuit during and post wiring activity using appropriate tools as per direction of electrician

PC11. assist in carrying out electrical earthing work by installing earthing components as per instructions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for laying conduit and cable for LV single phase wiring work

KU2. safety rules and regulations for handling and storing required electrical tools, equipment, and materials

KU3. personal protection including the use of related safety gears & equipment in accordance with organizational norms

KU4. service request procedures for tools, materials and equipment as per organizational norms

KU5. procedure for maintenance of tools and equipment

KU6. single line diagram (SLD), and schematics, wiring diagrams of electrical connections including wiring symbols used in single and three phase wiring

KU7. manufacturers guidelines/ specifications for the use of hand/power tools and measuring devices

KU8. how to use hand and power tools to carry out required activities

KU9. how to use electrical measuring/ diagnostic devices to undertake required tests to install and maintain electrical circuits

KU10. the procedure of selection of LV cable depending upon the circuit load requirement and types of cables based on their insulation and their respective uses in electrical works

KU11. electrical units of measurement and their symbols (such as Watt, Ampere, Ohm, volt etc.)

KU12. method of termination of wires and cables during installation and maintenance

KU13. basic principles for setting and maintaining temporary lighting and other related electrical systems

KU14. electrical theory such as ohms law, amperes law, electromagnetic field and its effects

KU15. the basic concept of single-phase and three-phase LV connections including their uses

KU16. the basic concept of AC and DC

KU17. basic characteristics of series, parallel and combination circuits and test to be performed on the same

KU18. basic concept of bridge circuits, their connections and tests to be carried out in the same

KU19. the basic principle of electrical current flow, fundamental terms like resistance, temperature, cross-section of conductor and their relations

KU20. properties of conductors, insulators, and semiconductors

KU21. selection, use and maintenance of electrical measuring devices like digital multimeter, earth tester, megger, tong tester etc.

KU22. method to trace out short circuit, power interruption/ continuity using diagnostic tools/devices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least two languages, preferably the local language at the site and basic English

GS2. read SLDs, work and safety related instructions/signboards in one or more languages, preferably in the local language of the site

GS3. speak in one or more language, preferably one of the local language at site

GS4. listen attentively to instructions given by supervisor

GS5. communicate orally and efficiently with team members

GS6. analyze the safety aspect of the workplace

GS7. plan work and organize required resource effectively

GS8. ensure work is done within time and as per desired quality based on instructions provided by superiors

GS9. resolve any conflict within the teammates

GS10. evaluate the complexity of the tasks

GS11. identify any violation of safety norms during the work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Provide assistance for LV electrical wiring work in permanent structures	**30**	**70**	**-**	**-**
PC1. select house wiring components (such as wires, flexible and rigid conduits, PVC raceways, wooden battens, clamps etc.) according to their specification / size	-	-	-	-
PC2. read and interpret single phase LV wiring diagram	-	-	-	-
PC3. carry out necessary linear measurement to cut, bend, join conduits and cables and use them as per requirement or instruction	-	-	-	-
PC4. lay conduit through RCC structures (slabs, beams, walls) or through chased wall (brick wall) surface as per instruction	-	-	-	-
PC5. lock conduit pipe in its location by means of clamp or other standard means as per instruction	-	-	-	-
PC6. pull, push wires through conduits in order to expose them at desired locations as per requirement	-	-	-	-
PC7. perform drilling and cutting using appropriate tools as per requirement	-	-	-	-
PC8. handle ,shift and assist in fixing electrical fixtures and fittings as per instructions	-	-	-	-
PC9. carry out termination of cables safely as per instruction	-	-	-	-
PC10. test electrical circuit during and post wiring activity using appropriate tools as per direction of electrician	-	-	-	-
PC11. assist in carrying out electrical earthing work by installing earthing components as per instructions	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0604
NOS Name	Assist in LV(low voltage) electrical wiring at permanent structures
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	20/01/2021
Next Review Date	20/01/2025
NSQC Clearance Date	

CON/N0605: Assemble, install and maintain temporary LV electrical panels (distribution boards) at construction site

Description

This unit describes the knowledge and the skills required to assemble, install, and maintain temporary LV electrical panels (distribution boards) at construction site.

Scope

The scope covers the following :

- Assemble temporary LV power distribution panels (distribution boards)
- Repair/ replace faulty parts/ fixtures as per requirement

Elements and Performance Criteria

Assemble temporary LV power distribution panels (distribution boards)

To be competent, the user/individual on the job must be able to:

PC1. read relevant SLDs(Single Line Diagrams), instructions, safety guidelines, manufacturers specifications prior to assembling temporary panel/ distribution boards

PC2. install required fixtures like power sockets, switches, wires, MCBs(Miniature Circuit Breakers) of appropriate specification as per circuit load requirement

PC3. ensure tightness and safe working condition of wires, fixtures prior to the connection of the assembly with power source

PC4. connect DB(Distribution Board) to main power cable and perform standard tests to ensure its safe and desired working

PC5. place and secure the distribution board against external damaging agents like water, fire etc.

PC6. carry out proper termination of cables as per standard practice while connecting to the sockets of the panel

PC7. carry out earthing of the panels as per standard procedure

PC8. check and ensure necessary tagging and barrication near the live/ active electrical distribution boards

Repair/ replace faulty parts/ fixtures as per requirement

To be competent, the user/individual on the job must be able to:

PC9. carry out visual inspection of the live/ active board regularly to ensure safe working condition of all components

PC10. ensure that the live connections get discontinued after completion of daily construction works in order to minimize energy wastage and enhance working efficiency of electrical units

PC11. respond promptly to failure/ damage or malfunctioning of panel or any of its components

PC12. carry out necessary tests in order to determine root cause of failure

PC13. notify concerned authorities prior to shut down, deactivation or repair of the electrical unit

PC14. replace/ repair faulty components as per SLD, instructions, safety guidelines and manufacturers specifications

PC15. document and keep records relevant to maintenance/ repair of panels as per organizational norms

PC16. isolate the panel safely and shift to another location as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for repairing and maintaining common electrical equipment
KU2. safety rules and regulations for handling required electrical tools, equipment and materials
KU3. importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms
KU4. service request procedures for tools, materials and equipment as per organizational norms
KU5. procedure for maintenance of tools and equipment
KU6. single line diagram (SLD), and schematics, wiring diagrams of electrical connections including wiring symbols of single and three phase wiring
KU7. how to use electrical measuring/ diagnostic devices to undertake required tests to install and maintain electrical circuits
KU8. selection of cable depending upon the circuit load requirement and insulation
KU9. electrical units of measurements and their signs (such as Watt, Ampere, Ohm, volt, etc.)
KU10. method of termination of wires and cables during installation and maintenance
KU11. basic principles for setting and maintaining temporary lighting and other related electrical systems
KU12. electrical theory such as ohms law, amperes law, electromagnetic field and its effects
KU13. concept of single-phase and three-phase LV connections and their uses
KU14. the basic concept of AC and DC
KU15. characteristics of series, parallel and combination circuits and test to be performed in the same
KU16. concept of bridge circuits, their connections and tests to be carried out in the same
KU17. the basic principle of electrical current flow, fundamental terms like resistance, temperature, the cross-section of conductor and their relations
KU18. the process of joining of LV cable by straight-through joints and other standard procedures
KU19. properties of conductors, insulators, and semi- conductors
KU20. selection, use and maintenance of electrical measuring devices like digital multimeter, earth tester, megger, tong tester etc.
KU21. method to trace out short circuit, power interruption/ continuity using diagnostic tools/devices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least two languages, preferably the local language at the site and basic English
GS2. read SLDs, work and safety-related instructions/signboards in one or more languages, preferably in the local language of the site
GS3. speak in one or more language, preferably one of the local language at site
GS4. listen attentively to instructions communicated by supervisors
GS5. communicate orally and efficiently with team members
GS6. analyze the safety aspect of the workplace
GS7. plan work and organize required resource effectively
GS8. ensure work is done within time and as per desired quality based on instructions provided by superiors
GS9. resolve any conflict within the teammates

GS10. evaluate the complexity of the task

GS11. identify any violation of safety norms during the work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Assemble temporary LV power distribution panels (distribution boards)	**20**	**40**	**-**	**-**
PC1. read relevant SLDs(Single Line Diagrams), instructions, safety guidelines, manufacturers specifications prior to assembling temporary panel/ distribution boards	-	-	-	-
PC2. install required fixtures like power sockets, switches, wires, MCBs(Miniature Circuit Breakers) of appropriate specification as per circuit load requirement	-	-	-	-
PC3. ensure tightness and safe working condition of wires, fixtures prior to the connection of the assembly with power source	-	-	-	-
PC4. connect DB(Distribution Board) to main power cable and perform standard tests to ensure its safe and desired working	-	-	-	-
PC5. place and secure the distribution board against external damaging agents like water, fire etc.	-	-	-	-
PC6. carry out proper termination of cables as per standard practice while connecting to the sockets of the panel	-	-	-	-
PC7. carry out earthing of the panels as per standard procedure	-	-	-	-
PC8. check and ensure necessary tagging and barrication near the live/ active electrical distribution boards	-	-	-	-
Repair/ replace faulty parts/ fixtures as per requirement	**10**	**30**	**-**	**-**
PC9. carry out visual inspection of the live/ active board regularly to ensure safe working condition of all components	-	-	-	-
PC10. ensure that the live connections get discontinued after completion of daily construction works in order to minimize energy wastage and enhance working efficiency of electrical units	-	-	-	-
PC11. respond promptly to failure/ damage or malfunctioning of panel or any of its components	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. carry out necessary tests in order to determine root cause of failure	-	-	-	-
PC13. notify concerned authorities prior to shut down, deactivation or repair of the electrical unit	-	-	-	-
PC14. replace/ repair faulty components as per SLD, instructions, safety guidelines and manufacturers specifications	-	-	-	-
PC15. document and keep records relevant to maintenance/ repair of panels as per organizational norms	-	-	-	-
PC16. isolate the panel safely and shift to another location as per requirement	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0605
NOS Name	Assemble, install and maintain temporary LV electrical panels (distribution boards) at construction site
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
NSQF Level	3
Credits	TBD
Version	2.0
Last Reviewed Date	20/01/2021
Next Review Date	20/01/2025
NSQC Clearance Date	

CON/N8001: Work effectively in a team to deliver desired results at the workplace

Description

This unit describes the skills and knowledge required to work effectively within a team to achieve the desired results

Scope

The scope covers the following :

- Interact and communicate in an effective manner
- Support co-workers to execute the project requirements
- Practice inclusion

Elements and Performance Criteria

Interact and communicate in an effective manner

To be competent, the user/individual on the job must be able to:

PC1. pass on work related information/ requirement clearly to the team members

PC2. inform co-workers and superiors about any kind of deviations from work

PC3. report any unresolved problem to the supervisor immediately

PC4. obtain instructions from superiors and respond on the same

PC5. communicate to team members/subordinates for appropriate work technique and method

PC6. seek clarification and advice as per the requirement

Support co-workers to execute the project requirements

To be competent, the user/individual on the job must be able to:

PC7. hand over the required material, tools, tackles, equipment and work fronts timely to interfacing teams

PC8. work together with co-workers in a synchronized manner

Practice inclusion

To be competent, the user/individual on the job must be able to:

PC9. maintain cultural inclusivity at work place

PC10. maintain disability friendly work practices

PC11. follow gender neutral practices at workplace

PC12. address discriminatory and offensive behaviour in a professional manner as per organizational policy

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. own roles and responsibilities

KU2. importance of effective communication

KU3. the consequence of poor teamwork on project outcomes, timelines, safety at the construction site, etc.

KU4. different modes of communication used at workplace

KU5. importance of creating healthy and cooperative work environment among the gangs of workers

KU6. different activities within the work area where interaction with other workers is required

KU7. applicable techniques of work, properties of materials used, tools and tackles used, safety standards that co-workers might need as per the requirement

KU8. importance of proper and effective communication and the expected adverse effects in case of failure relating to quality, timeliness, safety, risks at the construction project site

KU9. importance and need of supporting co-workers facing problems for the smooth functioning of work

KU10. the fundamental concept of gender equality

KU11. how to recognise and be sensitive to issues of disability, culture and gender

KU12. legislation, policies, and procedures relating to gender sensitivity and cultural diversity including their impact on the area of operation

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least one language, preferably in the local language of the site

GS2. read the communication regarding work completion, materials used, tools and tackles used, the resource required, etc,

GS3. speak in one or more languages, preferably in one of the local language of the site

GS4. listen and follow instructions / communication shared by superiors/ co-workers regarding team requirements or interfaces during work processes

GS5. communicate orally and effectively with co-workers considering their educational and social background

GS6. decide on what information is to be shared with co-workers within the team or to the interfacing gang of workers

GS7. plan work and organize the required resources in coordination with team members

GS8. complete all assigned task in coordination with team members

GS9. take initiative in resolving issues among co-workers or report the same to superiors

GS10. ensure best ways of coordination among team members

GS11. evaluate the complexity of task and determine if any guidance is required from superiors

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interact and communicate in an effective manner	**18**	**42**	**-**	**-**
PC1. pass on work related information/ requirement clearly to the team members	-	-	-	-
PC2. inform co-workers and superiors about any kind of deviations from work	-	-	-	-
PC3. report any unresolved problem to the supervisor immediately	-	-	-	-
PC4. obtain instructions from superiors and respond on the same	-	-	-	-
PC5. communicate to team members/subordinates for appropriate work technique and method	-	-	-	-
PC6. seek clarification and advice as per the requirement	-	-	-	-
Support co-workers to execute the project requirements	**6**	**14**	**-**	**-**
PC7. hand over the required material, tools, tackles, equipment and work fronts timely to interfacing teams	-	-	-	-
PC8. work together with co-workers in a synchronized manner	-	-	-	-
Practice inclusion	**6**	**14**	**-**	**-**
PC9. maintain cultural inclusivity at work place	-	-	-	-
PC10. maintain disability friendly work practices	-	-	-	-
PC11. follow gender neutral practices at workplace	-	-	-	-
PC12. address discriminatory and offensive behaviour in a professional manner as per organizational policy	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N8001
NOS Name	Work effectively in a team to deliver desired results at the workplace
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Generic 2
NSQF Level	4
Credits	TBD
Version	6.0
Last Reviewed Date	16/12/2020
Next Review Date	16/12/2024
NSQC Clearance Date	

CON/N8002: Plan and organize work to meet expected outcomes

Description

This unit describes the knowledge and the skills required for an individual to plan and organize own work in order to meet expected outcome

Scope

The scope covers the following :

- Plan and prepare for work
- Organise required resources as per work plan
- Complete work as per the plan

Elements and Performance Criteria

Plan and prepare for work

To be competent, the user/individual on the job must be able to:

PC1. identify the targets and timelines set by superiors

PC2. determine the work requirements corresponding to task(drawings/schedules/instructions/methodology), safety, tools and equipment prior to commencement of task

PC3. plan the work by analyzing the required outcomes, work procedures, allotted time, resource availability and known priorities

PC4. prepare the work areas in coordination with team members

PC5. plan for waste collection and disposal prior to and after completion of work

Organise required resources as per work plan

To be competent, the user/individual on the job must be able to:

PC6. arrange the required manpower prior to commencement of work

PC7. organize the required materials, tools and tackles required for the task

Complete work as per the plan

To be competent, the user/individual on the job must be able to:

PC8. engage allocated manpower in an appropriate manner

PC9. employ correct tools, tackles and equipment for the desired work

PC10. provide guidance to the subordinates to obtain desired outcome

PC11. use resources in an optimum manner to avoid any unnecessary wastage

PC12. use tools, tackles and equipment carefully to avoid damage

PC13. ensure the work processes adopted are in line with the specified standards and instructions

PC14. complete the work with the allocated resources within specified time

PC15. clean and organise the workplace after completion of task

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of proper housekeeping including safe waste disposal

KU2. policies, procedures and work targets set by superiors

KU3. how to identify work activities that need to be planned and organized

KU4. how to determine the task requirements

KU5. how to determine the quality requirements related to the task

KU6. how to undertake all aspect of planning and organizing the task, including interpretation of task, reading drawing/schedules, arranging resources, reporting problems etc.

KU7. how to implement the planned activities

KU8. how to use available resources in a judicious and appropriate manner to minimize wastages or damage

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in one or more language, preferably the local language at the site

GS2. read communication from co-workers, superiors and notices from other departments as per requirement of the level

GS3. speak in one or more language, preferably one of the local language at the site

GS4. follow communication shared by co-workers regarding standard work processes, resources available, timelines, etc.

GS5. communicate effectively with co-workers and subordinates

GS6. decide on what sequence is to be adopted for execution of work

GS7. plan and organize the materials, tools, tackles and equipment required to execute the work

GS8. complete all assigned task with proper planning and organizing

GS9. analyze areas of work which could result in a delay of work, wastage of material or damage to tools and tackles

GS10. evaluate potential solutions to minimize avoidable delays and wastages at the construction site

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Plan and prepare for work	**9**	**21**	**-**	**-**
PC1. identify the targets and timelines set by superiors	-	-	-	-
PC2. determine the work requirements corresponding to task(drawings/schedules/instructions/methodology), safety, tools and equipment prior to commencement of task	-	-	-	-
PC3. plan the work by analyzing the required outcomes, work procedures, allotted time, resource availability and known priorities	-	-	-	-
PC4. prepare the work areas in coordination with team members	-	-	-	-
PC5. plan for waste collection and disposal prior to and after completion of work	-	-	-	-
Organise required resources as per work plan	**6**	**14**	**-**	**-**
PC6. arrange the required manpower prior to commencement of work	-	-	-	-
PC7. organize the required materials, tools and tackles required for the task	-	-	-	-
Complete work as per the plan	**15**	**35**	**-**	**-**
PC8. engage allocated manpower in an appropriate manner	-	-	-	-
PC9. employ correct tools, tackles and equipment for the desired work	-	-	-	-
PC10. provide guidance to the subordinates to obtain desired outcome	-	-	-	-
PC11. use resources in an optimum manner to avoid any unnecessary wastage	-	-	-	-
PC12. use tools, tackles and equipment carefully to avoid damage	-	-	-	-
PC13. ensure the work processes adopted are in line with the specified standards and instructions	-	-	-	-
PC14. complete the work with the allocated resources within specified time	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. clean and organise the workplace after completion of task	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N8002
NOS Name	Plan and organize work to meet expected outcomes
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Generic 2
NSQF Level	4
Credits	TBD
Version	5.0
Last Reviewed Date	16/12/2020
Next Review Date	16/12/2024
NSQC Clearance Date	

CON/N9001: Work according to personal health, safety and environment protocols at construction site

Description

This NOS covers the skill and knowledge required for an individual to work according to personal health, safety and environmental protocols at construction site

Scope

The scope covers the following :

- Follow safety norms as defined by organization
- Adopt healthy & safe work practices
- Implement good housekeeping and environment protection process and activities
- Follow infection control guidelines as per applicability

Elements and Performance Criteria

Follow safety norms as defined by the organization

To be competent, the user/individual on the job must be able to:

PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority

PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities

PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable

PC4. follow all the protocols and safety techniques conveyed during safety awareness programs like Tool Box Talks, safety demonstrations and mock drills conducted at the site

PC5. select and operate different types of fire extinguishers corresponding to various types of fires as per EHS guideline

PC6. identify near miss, unsafe condition and unsafe act

Adopt healthy & safe work practices

To be competent, the user/individual on the job must be able to:

PC7. use appropriate Personal Protective Equipment (PPE) as per work requirements for : Head Protection, Ear protection, Fall Protection ,Foot Protection, Face and Eye Protection, Hand and Body Protection , and Respiratory Protection (if required)

PC8. handle all required tools, tackles, materials and equipment safely

PC9. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines

PC10. check and install all safety equipment as per standard guidelines

PC11. follow safety protocols and practices as laid down by site EHS department

PC12. obtain "height pass" clearance for working at heights

Implement good housekeeping practices

To be competent, the user/individual on the job must be able to:

PC13. collect, segregate and deposit construction waste into appropriate containers based on their toxicity or hazardous nature

PC14. apply ergonomic principles wherever required

Follow infection control guidelines as per applicability

To be competent, the user/individual on the job must be able to:

PC15. follow recommended personal hygiene, workplace hygiene and sanitization practices

PC16. clean and disinfect all materials, tools and supplies before and after use

PC17. report immediately to concerned authorities regarding signs and symptoms of illness of self and others

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. reporting procedures in cases of breaches or hazards for site safety, accidents, and emergency situations as per guidelines

KU2. types of safety hazards at construction sites

KU3. basic ergonomic principles as per applicability

KU4. the procedure for responding to accidents and other emergencies at site

KU5. use of appropriate personal protective equipment based on various working conditions

KU6. importance of handling tools, equipment, and materials as per applicable norms

KU7. effect of construction material on health and environments as per applicability

KU8. various environmental protection methods as per applicability

KU9. storage of waste including non-combustible scrap material and debris, combustible scrap material and debris, general construction waste and trash (non-toxic, non-hazardous), any other hazardous wastes and any other flammable wastes at the appropriate location

KU10. how to keep the workplace neat and tidy so as to be safe

KU11. how to use hazardous material in a safe and appropriate manner as per applicability

KU12. types of fire

KU13. procedure of operating different types of fire extinguishers

KU14. safety relevant to tools, tackles, and equipment as per applicability

KU15. housekeeping activities relevant to task

KU16. ways of transmission of infection

KU17. ways to manage infectious risks at the workplace

KU18. different methods of cleaning, disinfection, sterilization, and sanitization

KU19. symptoms of infection like fever, cough, redness, swelling, and inflammation

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write in at least one language, preferably in the local language of the site

GS2. fill safety formats for near miss, unsafe conditions and safety suggestions

GS3. read in one or more language, preferably in the local language of the site

GS4. speak in one or more language, preferably in one of the local language of the site

GS5. listen to instructions/communication shared by site EHS and superiors regarding site safety, and conducting the toolbox talk

GS6. identify potential safety risks and report to the appropriate authority

GS7. assess and analyze areas which may affect health, safety and environment protocol on the site

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Follow safety norms as defined by the organization	**6**	**14**	**-**	**-**
PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority	-	-	-	-
PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities	-	-	-	-
PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable	-	-	-	-
PC4. follow all the protocols and safety techniques conveyed during safety awareness programs like Tool Box Talks, safety demonstrations and mock drills conducted at the site	-	-	-	-
PC5. select and operate different types of fire extinguishers corresponding to various types of fires as per EHS guideline	-	-	-	-
PC6. identify near miss, unsafe condition and unsafe act	-	-	-	-
Adopt healthy & safe work practices	**15**	**35**	**-**	**-**
PC7. use appropriate Personal Protective Equipment (PPE) as per work requirements for : Head Protection, Ear protection, Fall Protection ,Foot Protection, Face and Eye Protection, Hand and Body Protection , and Respiratory Protection (if required)	-	-	-	-
PC8. handle all required tools, tackles, materials and equipment safely	-	-	-	-
PC9. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines	-	-	-	-
PC10. check and install all safety equipment as per standard guidelines	-	-	-	-
PC11. follow safety protocols and practices as laid down by site EHS department	-	-	-	-
PC12. obtain "height pass" clearance for working at heights	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Implement good housekeeping practices	**6**	**14**	**-**	**-**
PC13. collect, segregate and deposit construction waste into appropriate containers based on their toxicity or hazardous nature	-	-	-	-
PC14. apply ergonomic principles wherever required	-	-	-	-
Follow infection control guidelines as per applicability	**3**	**7**	**-**	**-**
PC15. follow recommended personal hygiene, workplace hygiene and sanitization practices	-	-	-	-
PC16. clean and disinfect all materials, tools and supplies before and after use	-	-	-	-
PC17. report immediately to concerned authorities regarding signs and symptoms of illness of self and others	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N9001
NOS Name	Work according to personal health, safety and environment protocols at construction site
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Generic Safety
NSQF Level	4
Credits	TBD
Version	6.0
Last Reviewed Date	16/12/2020
Next Review Date	16/12/2024
NSQC Clearance Date	

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC)/ Elements 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/ Elements.

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 center based on assessment criteria.

5. The passing percentage for each QP will be 50%. To pass the Qualification Pack, every trainee should score a minimum of 50% 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 time frame set by SSC.

10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

Minimum Aggregate Passing % at QP Level : 50

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Minimum Passing % at NOS Level: 50

(**Please note**: A Trainee must score the minimum percentage for each NOS separately as well as on the QP as a whole.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N0602.Handle hand and power tools relevant to construction electrical works	30	70	0	0	100	16
CON/N0603.Install temporary lighting arrangement at construction sites	30	70	0	0	100	20
CON/N0604.Assist in LV(low voltage) electrical wiring at permanent structures	30	70	0	0	100	20
CON/N0605.Assemble, install and maintain temporary LV electrical panels (distribution boards) at construction site	30	70	0	0	100	16
CON/N8001.Work effectively in a team to deliver desired results at the workplace	30	70	-	-	100	8
CON/N8002.Plan and organize work to meet expected outcomes	30	70	-	-	100	8
CON/N9001.Work according to personal health, safety and environment protocols at construction site	30	70	-	-	100	12
Total	**210**	**490**	**0**	**0**	**700**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a 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 quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.

Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.