Qualification Pack

Rural Mason

Electives: General/ Bamboo structure

Options: Compresses Stabilized Earth Block (CSEB)/ Random Rubble Masonry (RRB)

QP Code: CON/Q3603

Version: 2.0

NSQF Level: 4

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Contents

CON/Q3603: Rural Mason

Brief Job Description

The job role performs routine rural construction works with either bricks/blocks or bamboo and perform work such as earth work for foundation, layout marking and construction of foundation, walls, installation of sanitary fittings and fixtures in rural toilets , IPS flooring, reinforcement and shuttering works, manual concreting works, fixing of door and window frames and shutters, treatment of bamboo, construction of simple building using bamboo, seismic and wind protection measures, construction using CSEB and random rubble masonry work.

Personal Attributes

The individual is expected to be physically fit and should be able to work at rural location. The person must be able to handle the various rural masonry tools and materials, perform as per quality and efficiency requirements with a team in a responsible and professional manner.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. CON/N3601: Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction
2. CON/N3608: Install sanitary fitting and fixtures in rural toilets

Electives*(mandatory to select at least one):*

Elective 1: General

The individual is required to perform the routine construction of rural houses using brick/block, perform concreting, shuttering carpentry, bar bending and IPS flooring using appropriate tools and equipment.

1. CON/N3602: Build brick / block masonry structures for rural construction
2. CON/N3604: Carry out IPS flooring in rural construction
3. CON/N3605: Carry out reinforcement steel works for R.C.C structures in rural construction
4. CON/N3606: Carry out shuttering works in rural construction
5. CON/N3607: Carry out manual concreting in rural construction

Elective 2: Bamboo structure

The individual is required to perform the routine construction of rural houses using bamboo as primary material, select and harvest bamboo, use bamboo in construction of building and perform seismic and wind safety measures for bamboo housing using appropriate tools and equipment.

1. CON/N3621: Select, harvest and prepare the bamboo for the construction works
2. CON/N3622: Select, stack and perform visual quality checks on bamboo used for construction purpose
3. CON/N3623: Cut, shape, drill and join treated bamboo for making of mat, posts, joints, ties, beams and bracing used for building construction
4. CON/N3624: Construct simple rural buildings with treated bamboo
5. CON/N3625: Follow seismic and wind safety protection measures for bamboo buildings

Options*(Not mandatory):*

Option 1: Compresses Stabilized Earth Block (CSEB)

The unit describe the skill and knowledge required to work with CSEB

1. CON/N3626: Construct buildings using Compresses Stabilized Earth Block (CSEB)

Option 2: Random Rubble Masonry (RRB)

The unit describe the skill and knowledge required to work with random rubble masonry

1. CON/N3603: Build structures using random rubble masonry for rural construction

Qualification Pack (QP) Parameters

Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural, Masonry - Rural
Country	India
NSQF Level	4
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL

Qualification Pack

Minimum Educational Qualification & Experience	8th Class with 2 Years of experience OR Certificate-NSQF (level 3) with 2 Years of experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NIL
Minimum Job Entry Age	18 Years
Last Reviewed On	31/03/2022
Next Review Date	31/03/2025
NSQC Approval Date	31/03/2022
Version	2.0
Reference code on NQR	2022/CON/CSDCI/05625
NQR Version	1.0

CON/N3601: Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction

Description

This unit describes the skills and knowledge required to mark layout for foundation, walls, soak pit/septic tank and monitor earth work activities for rural construction

Scope

The scope covers the following :

- Carry out preparatory work for layout marking
- Mark the layout for walls & foundations/ footings, soak pit/ septic tank.
- Monitor excavation & preparation of base layer
- Monitor backfilling activities

Elements and Performance Criteria

Carry out preparatory work for layout marking

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

PC1. read and interpret the sketches for foundation works, soak pits/septic tank

PC2. select required tools for the task and ensure they are in working condition

PC3. select appropriate Personal Protective Equipment (P.P.E.s) for the task

PC4. ensure work place is clear for marking the layout

PC5. set out the layouts as per sketches/drawings

PC6. identify and transfer required levels using water level tube

Mark the layout for walls & foundations/ footings, soak pit/ septic tank

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

PC7. mark the center lines of the rooms by setting perpendiculars using 3-4-5 method and check right angle (90) at corners

PC8. set out 90 corners using builders square or 3-4-5 method and check right angle

PC9. Check the diagonals if they are equal

PC10. extend the center lines and marks the center points about 2m away from the outer edge of excavation

PC11. mark the width of excavation from the plan

PC12. mark the center line of the septic tank by setting perpendiculars using 3-4-5method and check right angle (90)at corners as per applicability

PC13. mark the periphery of soak pits /septic tanks for excavation by identifying the center point

Monitor excavation & preparation of base layer

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

PC14. check and ensure that excavation is carried out to the desired depth using appropriate tools

PC15. check and ensure desired slope of earth is maintained during digging activity

PC16. provide necessary support to vertical side of excavated area to avoid soil collapse as per applicability

PC17. ensure earth is disposed from the excavated pit by using suitable tools and equipment such as spade, wheel barrows, pans etc

PC18. check for loose material, soil lumps, pebbles on achieving the desired earth level

PC19. ensure surface dressing work is carried out by disposing loose material, gravels, plant roots, sludge, muck or debris as per requirement to the appropriate locations

PC20. ensure compaction of base by ramming

Monitor backfilling activities

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

PC21. check and remove gravels, oversized aggregates ,organic matter from soil prior to be use in backfilling as per site conditions

PC22. ensure earth is placed and spread maintaining uniform layers within tolerance limit of thickness

PC23. ensure water is sprinkled uniformly over the layer to be compacted as and when required as per site conditions

PC24. check and ensure ramming over the soil layer as per site conditions

PC25. Check and ensure re-filling and compaction of excavated trenches, pits surrounding the structures or at necessary location as per soil site conditions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

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

KU3. personal protection including the use of the related safety gears & safety equipment

KU4. tools and equipment required for layout marking and earthwork, their use and maintenance

KU5. how to use basic tools in the masonry trade such as: Spirit level, water level, plumb bob, line thread

KU6. how to use the 3-4-5 method for squaring corners

KU7. standard practices for layout and earthwork

KU8. layout sketches for foundation and soak pit/septic tank

KU9. types of foundation , importance and purpose of foundation, knowledge about depth and plinth height

KU10. importance and purpose of soak pit / septic tank, knowledge about their suitable location and depth

KU11. work space requirement in excavated area, base preparation and levelling

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and Organize required resources
GS8. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory work for layout marking	**5**	**10**	**-**	**-**
PC1. read and interpret the sketches for foundation works, soak pits/septic tank	-	-	-	-
PC2. select required tools for the task and ensure they are in working condition	-	-	-	-
PC3. select appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC4. ensure work place is clear for marking the layout	-	-	-	-
PC5. set out the layouts as per sketches/drawings	-	-	-	-
PC6. identify and transfer required levels using water level tube	-	-	-	-
Mark the layout for walls & foundations/ footings, soak pit/ septic tank	**15**	**35**	**-**	**-**
PC7. mark the center lines of the rooms by setting perpendiculars using 3-4-5 method and check right angle (90) at corners	-	-	-	-
PC8. set out 90 corners using builders square or 3-4-5 method and check right angle	-	-	-	-
PC9. Check the diagonals if they are equal	-	-	-	-
PC10. extend the center lines and marks the center points about 2m away from the outer edge of excavation	-	-	-	-
PC11. mark the width of excavation from the plan	-	-	-	-
PC12. mark the center line of the septic tank by setting perpendiculars using 3-4-5method and check right angle (90)at corners as per applicability	-	-	-	-
PC13. mark the periphery of soak pits /septic tanks for excavation by identifying the center point	-	-	-	-
Monitor excavation & preparation of base layer	**5**	**15**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check and ensure that excavation is carried out to the desired depth using appropriate tools	-	-	-	-
PC15. check and ensure desired slope of earth is maintained during digging activity	-	-	-	-
PC16. provide necessary support to vertical side of excavated area to avoid soil collapse as per applicability	-	-	-	-
PC17. ensure earth is disposed from the excavated pit by using suitable tools and equipment such as spade, wheel barrows, pans etc	-	-	-	-
PC18. check for loose material, soil lumps, pebbles on achieving the desired earth level	-	-	-	-
PC19. ensure surface dressing work is carried out by disposing loose material, gravels, plant roots, sludge, muck or debris as per requirement to the appropriate locations	-	-	-	-
PC20. ensure compaction of base by ramming	-	-	-	-
Monitor backfilling activities	**5**	**10**	**-**	**-**
PC21. check and remove gravels, oversized aggregates ,organic matter from soil prior to be use in backfilling as per site conditions	-	-	-	-
PC22. ensure earth is placed and spread maintaining uniform layers within tolerance limit of thickness	-	-	-	-
PC23. ensure water is sprinkled uniformly over the layer to be compacted as and when required as per site conditions	-	-	-	-
PC24. check and ensure ramming over the soil layer as per site conditions	-	-	-	-
PC25. Check and ensure re-filling and compaction of excavated trenches, pits surrounding the structures or at necessary location as per soil site conditions	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3601
NOS Name	Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3608: Install sanitary fitting and fixtures in rural toilets

Description

This unit describes the skills and knowledge required to install sanitary fittings and fixtures in rural toilets

Scope

The scope covers the following :

- Carry out preparatory activities for installation of sanitary fittings and fixtures for rural toilets
- Carry out installation of sanitary fitting and fixtures for rural toilets
- Check gradient and perform test for leakage before commissioning of rural toilet

Elements and Performance Criteria

Carry out preparatory activities for installation of sanitary fi ttings and fixtures for rural toilets

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

PC1. read and understand sketches of sanitary fittings and fixtures and their connection to soak pit/septic tank

PC2. select sanitary fixtures and carry out checks to ensure workability as per requirement

PC3. check toilet enclosure, bathing space, soak pits/septic tank are built as per drawings/sketches and necessary gradients

PC4. place and fix pre-cast concrete rings for soak pits as per applicability

PC5. locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels

PC6. establish the sequence of pipe installations

PC7. assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment

Carry out installation of sanitary fitting and fixtures for rural toilets

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

PC8. cut openings in structures to accommodate pipes and pipe fittings, using hand tools

PC9. install pipe assemblies, fittings, and fixtures such as toilet pan using hand tools

PC10. maintaining necessary gradient for toilet floor

PC11. connect toilet with soak pit/septic tank and inspection chamber maintaining necessary gradient as per specification

Check gradient and perform test for leakage before commissioning of rural toilet

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

PC12. test the joints and fixtures for proper functioning

PC13. check the overall system for proper functioning prior to commissioning by carrying out trial run

PC14. clear the work area after completion of work

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. sketches for plumbing and sanitation system
KU2. units of measurement and basic principles of measurement
KU3. different types of materials (CI/GI/PVC pipes, etc.), basic sanitary fittings (taps, valves, clamps, elbows, etc.) and fixtures (toilet pans, traps, etc.)
KU4. techniques related to cutting, bending and joining of fittings and fixtures
KU5. personal protection including the use of related safety gears & equipment
KU6. various types of defects such as leakages, improper alignment, etc.
KU7. basic plumbing terminology and standard practices for plumbing work
KU8. standard size of relevant hand tools such as wrenches, plier, screwdriver,pipe cutter, pipe bender, threading tool, hacksaw, metal file, etc. and safety rules for handling and maintenance of tools
KU9. transferring levels using basic leveling devices
KU10. importance of appropriate disposal of wastes
KU11. Soak pits/ septic tank construction and working procedure

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and organize required resources
GS8. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory activities for installation of sanitary fi ttings and fixtures for rural toilets	**12**	**28**	**-**	**-**
PC1. read and understand sketches of sanitary fittings and fixtures and their connection to soak pit/septic tank	-	-	-	-
PC2. select sanitary fixtures and carry out checks to ensure workability as per requirement	-	-	-	-
PC3. check toilet enclosure, bathing space, soak pits/septic tank are built as per drawings/sketches and necessary gradients	-	-	-	-
PC4. place and fix pre-cast concrete rings for soak pits as per applicability	-	-	-	-
PC5. locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels	-	-	-	-
PC6. establish the sequence of pipe installations	-	-	-	-
PC7. assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment	-	-	-	-
Carry out installation of sanitary fitting and fixtures for rural toilets	**12**	**28**	**-**	**-**
PC8. cut openings in structures to accommodate pipes and pipe fittings, using hand tools	-	-	-	-
PC9. install pipe assemblies, fittings, and fixtures such as toilet pan using hand tools	-	-	-	-
PC10. maintaining necessary gradient for toilet floor	-	-	-	-
PC11. connect toilet with soak pit/septic tank and inspection chamber maintaining necessary gradient as per specification	-	-	-	-
Check gradient and perform test for leakage before commissioning of rural toilet	**6**	**14**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. test the joints and fixtures for proper functioning	-	-	-	-
PC13. check the overall system for proper functioning prior to commissioning by carrying out trial run	-	-	-	-
PC14. clear the work area after completion of work	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3608
NOS Name	Install sanitary fitting and fixtures in rural toilets
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3602: Build brick / block masonry structures for rural construction

Description

This unit describes the skills and knowledge required to build various masonry structures using brick / block and fix ready- to-install doors, windows and ventilators

Scope

The scope covers the following :

- Carry out preparatory activities for brick/block masonry work
- Check material used for brickwork / block work
- Lay brick / block for construction of load bearing / non-load bearing wall, columns, footings and soak pits / septic tanks
- Carry out pointing in brick masonry
- Fix ready-to-install doors, windows and ventilators.

Elements and Performance Criteria

Carry out preparatory activities for brick/block masonry work

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

PC 1. read and interpret the basic working drawings / sketches before the commencement of brick / block work

PC2. select appropriate Personal Protective Equipment (P.P.E.s) for the task

PC3. set out the layouts as per sketches/drawingsselect appropriate Personal Protective Equipment (P.P.E.s) for the task

PC4. identify and transfer required levels using appropriate tools

PC5. estimate the quantity of raw material required such as brick/block, cement and fine aggregate required

Check material used for brickwork/block work

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

PC6. visual check for quality of bricks / blocks prior to use

PC7. ensure fine aggregate is sieved as per requirement

PC8. ensure proper stacking of bricks / blocks of required numbers as per requirement at the work place

Lay brick / block for construction of load bearing / non-load bearing wall, columns, footings and soak pits / septic tanks

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

PC9. check and ensure the base surface is free of dust, dirt & debris prior to commencement of work

PC10. ensure removal of all loose concrete laitance and roughening of the surface prior to laying of brick/block

PC11. ensure soaking of brick/block and pre wetting of base surface prior to commencement of work

PC12. select appropriate tools and equipment as per the tasks ensuring they are in working condition such as: different types of trowels (of the right blade size) masons hammer blocking chisel mashing hammer jointers

PC13. break bricks to required shape and size using appropriate tools following appropriate safety measures

PC14. lay and fix bricks / blocks for columns, walls, soak pits /septic tanks

PC15. check vertical and horizontal alignment using appropriate tools

PC16. maintain line and level of each course of brickwork using wooden / aluminum straight edge sections

PC17. set out 90 corners using builders square or 3-4-5 method and check right angle if required

PC18. ensure proper curing of constructed masonry structure

Carry out pointing in brick masonry

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

PC19. perform raking of joints as specified prior to drying of bonding mortar

PC20. ensure that joints are cleaned and surface is wet prior to pointing

PC21. ensure lime/cement mortar for pointing is prepared as per specification

PC22. fill joints with appropriate mortar to obtain specified type of pointing

PC23. carry out flush/recessed pointing using appropriate tools and technique

PC24. ensure proper curing of pointing

Fix ready-toinstall doors, windows and ventilators

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

PC25. mark, set out location of frames of doors, windows and ventilators

PC26. check and carry out proper alignment of the frame and hold in position with temporary support

PC27. check the holdfast position and grout it between bricks / blocks of wall

PC28. fill the gap between wall and door frame with non-shrink material/grout

PC29. fix wooden/metal panels for doors, windows and ventilators

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

KU2. type and size of raw materials ; their handling and storage

KU3. standard size of masonry tools and equipment, their use, care and maintenance such as measuring tape, trowels, floats, brushes, screed boards, straightedge, mortar boards and stands, shovels, hawks, joint rules, masons square, buckets, spade, volume box

KU4. safety rules and regulations for handling and storing required masonry tools, equipment and materials

KU5. personal protection including the use of related safety gears & equipment

KU6. sketches for building brick and block work structures

KU7. standard practices for masonry work

KU8. how to use basic leveling tools in the masonry trade such as Spirit level, water level, plumb bob, line thread

KU9. how to determine vertical and horizontal alignment using appropriate tools

KU10. cement grade and mix proportion and its importance

KU11. basic knowledge of water cement ratio

KU12. knowledge of stretcher, header English bonds ,Flemish bond and rat trap bond

KU13. various techniques / procedures for cutting/chiseling/dressing different types of bricks to closure

KU14. laying and fixing of brick, block for wall, foundation, column, soak pit/ septic tank

KU15. method of curing of masonry structures

KU16. different mortar mix used for pointing

KU17. flush and recessed pointing in brick masonry and its application

KU18. various pointing and raking tools and method of pointing

KU19. standard size of door / window, type of materials and fittings used

KU20. how to align the frames and checking the holdfast position

KU21. how to anchor frames to walls and fill gap between wall and frames

Generic Skills (GS)

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

GS1. read sketches for the task

GS2. read sign boards, and safety tags

GS3. basic numeracy skills

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

GS5. orally and effectively communicate with co-workers & subordinates

GS6. decide on whether the workplace is safe for working

GS7. plan work and organize required resources

GS8. complete work as per agreed time schedule and quality

GS9. optimize resources efficiently

GS10. minimize wastage in the workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory activities for brick/block masonry work	**5**	**10**	**-**	**-**
PC 1. read and interpret the basic working drawings / sketches before the commencement of brick / block work	-	-	-	-
PC2. select appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC3. set out the layouts as per sketches/drawingsselect appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC4. identify and transfer required levels using appropriate tools	-	-	-	-
PC5. estimate the quantity of raw material required such as brick/block, cement and fine aggregate required	-	-	-	-
Check material used for brickwork/block work	**2**	**3**	**-**	**-**
PC6. visual check for quality of bricks / blocks prior to use	-	-	-	-
PC7. ensure fine aggregate is sieved as per requirement	-	-	-	-
PC8. ensure proper stacking of bricks / blocks of required numbers as per requirement at the work place	-	-	-	-
Lay brick / block for construction of load bearing / non-load bearing wall, columns, footings and soak pits / septic tanks	**12**	**28**	**-**	**-**
PC9. check and ensure the base surface is free of dust, dirt & debris prior to commencement of work	-	-	-	-
PC10. ensure removal of all loose concrete laitance and roughening of the surface prior to laying of brick/block	-	-	-	-
PC11. ensure soaking of brick/block and pre wetting of base surface prior to commencement of work	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. select appropriate tools and equipment as per the tasks ensuring they are in working condition such as: different types of trowels (of the right blade size) masons hammer blocking chisel mashing hammer jointers	-	-	-	-
PC13. break bricks to required shape and size using appropriate tools following appropriate safety measures	-	-	-	-
PC14. lay and fix bricks / blocks for columns, walls, soak pits /septic tanks	-	-	-	-
PC15. check vertical and horizontal alignment using appropriate tools	-	-	-	-
PC16. maintain line and level of each course of brickwork using wooden / aluminum straight edge sections	-	-	-	-
PC17. set out 90 corners using builders square or 3-4-5 method and check right angle if required	-	-	-	-
PC18. ensure proper curing of constructed masonry structure	-	-	-	-
Carry out pointing in brick masonry	**6**	**14**	**-**	**-**
PC19. perform raking of joints as specified prior to drying of bonding mortar	-	-	-	-
PC20. ensure that joints are cleaned and surface is wet prior to pointing	-	-	-	-
PC21. ensure lime/cement mortar for pointing is prepared as per specification	-	-	-	-
PC22. fill joints with appropriate mortar to obtain specified type of pointing	-	-	-	-
PC23. carry out flush/recessed pointing using appropriate tools and technique	-	-	-	-
PC24. ensure proper curing of pointing	-	-	-	-
Fix ready-toinstall doors, windows and ventilators	**5**	**15**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. mark, set out location of frames of doors, windows and ventilators	-	-	-	-
PC26. check and carry out proper alignment of the frame and hold in position with temporary support	-	-	-	-
PC27. check the holdfast position and grout it between bricks / blocks of wall	-	-	-	-
PC28. fill the gap between wall and door frame with non-shrink material/grout	-	-	-	-
PC29. fix wooden/metal panels for doors, windows and ventilators	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3602
NOS Name	Build brick / block masonry structures for rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3604: Carry out IPS flooring in rural construction

Description

This unit describes the skills and knowledge required to work on IPS flooring

Scope

The scope covers the following :

- Carry out preparatory work prior to IPS flooring
- Carry out IPS flooring

Elements and Performance Criteria

Carry out preparatory work prior to IPS flooring

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

PC1. inspect the work area prior to concreting, ensure leveling in case of any undulations observed on the surface prior to concreting

PC2. select appropriate Personal Protective Equipment (P.P.E.s) for the task

PC3. ensure surface is prepared appropriately and address any deviation in slope and alignment in PCC

PC4. check the grade of cement prior to use in case of manual mixing

PC5. ensure fine aggregate is sieved as per grade requirement

PC6. mark reference level on the wall &transfer this marking to all floor locations using appropriates tools at regular intervals for ensuring required slope for proper drainage

PC7. check that concrete is mixed in appropriate proportion

PC8. visually assess the concrete mix for usability and workability

Carry out IPS flooring

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

PC9. ix the baton strip in cement mortar with their tops at appropriate level and according to slope

PC10. ensure panels are made as per specified size

PC11. pour concrete as per requirement up to approved floor level

PC12. level poured concrete to the specified levels maintaining required slope

PC13. remove excess cement slurry and any marks on the surface

PC14. level the concrete surface with a straight edge and to the required finish with a wooden float / trowel

PC15. cut groves on concrete at specified intervals for construction joints

PC16. spread cement punning over the IPS concrete for smooth finish surface and allow it to soak into the concrete, as per requirement

PC17. ensure curing of the finished floor surface for the specified time

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. storage and handling of the specific materials for this job work
KU2. standard practices for IPS flooring works
KU3. safety rules and regulations for handling & storing required masonry tools & materials
KU4. personal protection including the use of related safety gears & equipment
KU5. process to prepare the sub-base by watering and ramming
KU6. provide for adequate slope in PCC (Plain Cement Concrete) in a base course
KU7. how to make reference levels and transfer the markings to all locations where flooring is to be done
KU8. various type and grade of cement used, effect of water /cement ratio and type of aggregates
KU9. manual mixing of concrete and nominal mix proportions
KU10. sequence of concrete pouring and placing
KU11. how to avoid shrinkage cracks in concrete
KU12. cutting tools for providing joints
KU13. final troweling process before the concrete is hardened
KU14. dos and donts in the execution
KU15. basic work study (Practical aspects on executing works)
KU16. curing of the finished work

Generic Skills (GS)

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

GS1. basic numeracy skills
GS2. communicate orally and effectively with co-workers & subordinates
GS3. decide on whether the workplace is safe for working
GS4. plan work and Organize required resources
GS5. complete work as per agreed time schedule and quality
GS6. optimize resources efficiently
GS7. minimize wastage in the workplace
GS8. read sketches for the task
GS9. read sign boards, and safety tags

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory work prior to IPS flooring	**13**	**27**	**-**	**-**
PC1. inspect the work area prior to concreting, ensure leveling in case of any undulations observed on the surface prior to concreting	-	-	-	-
PC2. select appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC3. ensure surface is prepared appropriately and address any deviation in slope and alignment in PCC	-	-	-	-
PC4. check the grade of cement prior to use in case of manual mixing	-	-	-	-
PC5. ensure fine aggregate is sieved as per grade requirement	-	-	-	-
PC6. mark reference level on the wall &transfer this marking to all floor locations using appropriates tools at regular intervals for ensuring required slope for proper drainage	-	-	-	-
PC7. check that concrete is mixed in appropriate proportion	-	-	-	-
PC8. visually assess the concrete mix for usability and workability	-	-	-	-
Carry out IPS flooring	**17**	**43**	**-**	**-**
PC9. ix the baton strip in cement mortar with their tops at appropriate level and according to slope	-	-	-	-
PC10. ensure panels are made as per specified size	-	-	-	-
PC11. pour concrete as per requirement up to approved floor level	-	-	-	-
PC12. level poured concrete to the specified levels maintaining required slope	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. remove excess cement slurry and any marks on the surface	-	-	-	-
PC14. level the concrete surface with a straight edge and to the required finish with a wooden float / trowel	-	-	-	-
PC15. cut groves on concrete at specified intervals for construction joints	-	-	-	-
PC16. spread cement punning over the IPS concrete for smooth finish surface and allow it to soak into the concrete, as per requirement	-	-	-	-
PC17. ensure curing of the finished floor surface for the specified time	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3604
NOS Name	Carry out IPS flooring in rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3605: Carry out reinforcement steel works for R.C.C structures in rural construction

Description

This unit describes the skills and knowledge required to carry out reinforcement steel works for footing, column, beam and slab in rural construction

Scope

The scope covers the following :

- Read and understand sketches relevant to R.C.C footing, column, beam and slab
- Use hand tools for cutting and bending of reinforcement steel bars
- Fabricate, place and fix reinforcement steel for R.C.C footing, column, beam and slab

Elements and Performance Criteria

Read sketches relevant to R.C.Cfooting, column, beam and slab

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

PC1. read basic detail from the sketches / drawings

PC2. calculate cutting length of rebar from the sketches/drawing

PC3. calculate number of chairs, spacer bars requirement to be used

PC4. plan for cutting of re-bars as per requirement

Use hand/power tools for cutting and bending of reinforcement steel bars

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

PC5. select appropriate personal protective equipment (P.P.E.s) for the task

PC6. select hand tools/power tools for cutting re-bars as per requirement

PC7. mark cutting length on rebar and cut rebar using hand/power tools

PC8. select hand tools for bending rebars according to diameter of rebar to be bend

PC9. mark length on rebar and bend re-bar as per the shape and dimensions given in the sketches including hooks

PC10. maintain correct body posture while cutting and bending rebars manually or mechanically

PC11. check for length, shape of rebars to ensure they are within the tolerance limit

PC12. stack re-bars after cutting and bending as per standards practices

Fabricate place and fix reinforcement steel for R.C.Cfooting, column, beam and slab

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

PC13. select appropriate personal protective equipment (P.P.E.s) for the task

PC14. select re-bars for placement as per the drawing/sketches

PC15. follow correct method for insertion/ fixing of rebars for footing, column , beam and slab, place and fix on its position

PC16. maintain uniform spacing between the bars, stirrups, link rod as per the drawing/sketches

PC17. stagger the lap to avoid more than 50% of splicing

PC18. tie reinforcement with binding wires as per drawing with specified spacing
PC19. ensure that location and position of reinforcement and fixing ties to reinforcement are checked for accuracy
PC20. place cover blocks and spacers are placed to maintain appropriate covers & spacing
PC21. place and fix chairs at specified spacing to maintain correct thickness
PC22. check quality of reinforcement work with reference to spacing, placement, straightness of bar, rigidity of ties etc

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for reinforcement work
KU2. safety rules and regulations for handling and storing required tools, equipment and materials
KU3. personal protection including the use of related safety gears & equipment
KU4. maintenance of tools and equipment
KU5. use of measurement and marking tool
KU6. simple arithmetic calculation
KU7. unit weight of steel
KU8. different types of cover block and their uses
KU9. different types of steel rods, length and diameter
KU10. different types of binding wire, thickness and uses
KU11. prevention of reinforcement from rusting
KU12. use of chairs, spacer bar, hanger bars
KU13. how to read basic drawing/sketches for bar bending and fixing works
KU14. sequence for tying of reinforcement for in-situ, pre fabrication works
KU15. insertion and fixing process for slab(one way & two way slab), beam, column, footing, wall
KU16. lapping length and importance of lapping for different diameter of re-bars
KU17. importance of clear cover while carrying out reinforcement works
KU18. standard tolerance limits in reinforcement works

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and Organize required resources

GS8. complete work as per agreed time schedule and quality

GS9. minimize wastages

GS10. optimize resources

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Read sketches relevant to R.C.Cfooting, column, beam and slab	**6**	**14**	**-**	**-**
PC1. read basic detail from the sketches / drawings	-	-	-	-
PC2. calculate cutting length of rebar from the sketches/drawing	-	-	-	-
PC3. calculate number of chairs, spacer bars requirement to be used	-	-	-	-
PC4. plan for cutting of re-bars as per requirement	-	-	-	-
Use hand/power tools for cutting and bending of reinforcement steel bars	**9**	**21**	**-**	**-**
PC5. select appropriate personal protective equipment (P.P.E.s) for the task	-	-	-	-
PC6. select hand tools/power tools for cutting re-bars as per requirement	-	-	-	-
PC7. mark cutting length on rebar and cut rebar using hand/power tools	-	-	-	-
PC8. select hand tools for bending rebars according to diameter of rebar to be bend	-	-	-	-
PC9. mark length on rebar and bend re-bar as per the shape and dimensions given in the sketches including hooks	-	-	-	-
PC10. maintain correct body posture while cutting and bending rebars manually or mechanically	-	-	-	-
PC11. check for length, shape of rebars to ensure they are within the tolerance limit	-	-	-	-
PC12. stack re-bars after cutting and bending as per standards practices	-	-	-	-
Fabricate place and fix reinforcement steel for R.C.Cfooting, column, beam and slab	**15**	**35**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. select appropriate personal protective equipment (P.P.E.s) for the task	-	-	-	-
PC14. select re-bars for placement as per the drawing/sketches	-	-	-	-
PC15. follow correct method for insertion/ fixing of rebars for footing, column , beam and slab, place and fix on its position	-	-	-	-
PC16. maintain uniform spacing between the bars, stirrups, link rod as per the drawing/sketches	-	-	-	-
PC17. stagger the lap to avoid more than 50% of splicing	-	-	-	-
PC18. tie reinforcement with binding wires as per drawing with specified spacing	-	-	-	-
PC19. ensure that location and position of reinforcement and fixing ties to reinforcement are checked for accuracy	-	-	-	-
PC20. place cover blocks and spacers are placed to maintain appropriate covers & spacing	-	-	-	-
PC21. place and fix chairs at specified spacing to maintain correct thickness	-	-	-	-
PC22. check quality of reinforcement work with reference to spacing, placement, straightness of bar, rigidity of ties etc	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3605
NOS Name	Carry out reinforcement steel works for R.C.C structures in rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry-Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3606: Carry out shuttering works in rural construction

Description

This unit describes the skills and knowledge required to carry out shuttering works for footing, column, beam and slab in rural construction

Scope

The scope covers the following :

- Use hand tools for making wooden shutter board
- Carry out shuttering works in rural construction for R.C.C footing, column, beam and slab
- Carry out scaffolding works using bamboo/ballies or pipes and coupler for supporting rural construction activities

Elements and Performance Criteria

Use hand tool for making wooden shutter board

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

PC1. select appropriate personal protective equipment (P.P.E.s) for the task

PC2. check that all fixtures, consumables and materials are available for shutter making

PC3. carry out visual check to ensure materials for making shutters such as timber, plywood etc.are of good quality

PC4. use measurement and marking tools for marking

PC5. select and use regular hand tools such as hand saw, chisel, jack hammer, nailing hammer, hand drill and other tools efficiently

PC6. make wooden shutter panels using different types of joints such as dovetail, tenon & mortise, lap joints as per requirement

Carry out shuttering works in ruralconstruction for R.C.C footing,column, beam and slab

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

PC7. clean the shutter panels before using for shuttering work

PC8. apply release agents to sheathing material

PC9. check and ensure all tools, material, components are available as per requirements

PC10. check that fixing and fasteners are available as per requirement

PC11. position and provide necessary support for footing, column, beam and slab shuttering

PC12. plug all openings and gaps using appropriate materials

PC13. ensure water tightness of form by providing form sheet or necessary packing material

PC14. position and fix props properly and check for plumb, position and spacing

PC15. ensure tightness of tie rods, supports, and bracings

PC16. check erected formwork for line, level, alignment and plumb within tolerance limit

PC17. check the dimensional accuracy and right angle and take necessary corrective measures if required

PC18. ensure the RCC structure has gained sufficient strength before dismantling

PC19. dismantle formwork shutters sequentially as per standard practices

PC20. ensure that all the small components are stacked properly for further use

PC21. repair formwork material if required and ensure cleaning and proper stacking after dismantling

Carry out scaffoldingworks using bamboo/ballies orpipes and coupler for supporting rural construction activities

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

PC22. level area where scaffold need to be erected and check for ground compactness if required

PC23. select appropriate material for scaffolding as per requirement

PC24. erect scaffold sequentially as per requirement using locally available material (bamboo/ballies or pipes and coupler)

PC25. check for stability, rigidity and necessary support to scaffold

PC26. fix walk boards , guard rails and other components on working platform

PC27. dismantle scaffold sequentially and stack material properly after removing for further use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard procedure for shuttering works

KU2. reading of basic sketches / schematic working drawing that may be required for erecting and dismantling shuttering

KU3. basic principles of measurement, geometry and arithmetic calculation

KU4. linear conversion of units

KU5. different types of measurement and marking tools

KU6. selection, use of hand / power tools and their basic maintenance

KU7. standard size of all carpentry tools, materials and components, their selection and use

KU8. different type of shuttering material such as timber, plywood, wooden batten, GI sheets and other material

KU9. visual quality checks for shuttering material

KU10. knowledge and use of water level tube

KU11. different types of joints such as dovetail, tenon & mortise, lap joints

KU12. standard procedures for shuttering of footing, slab, beam and slab

KU13. how to provide support for shuttering of footing, slab, beam and slab

KU14. how to check for line, level and alignment of erected shutter boards

KU15. time for removing of shutters for footing, column, beam and slab

KU16. how to erect and dismantle staging (bamboo/ballies, pipes and coupler)

Generic Skills (GS)

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

GS1. read sketches for the task

GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. communicate orally and effectively with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and organize required resource
GS8. complete work as per agreed time schedule and quality
GS9. optimize resources
GS10. minimize wastages

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Use hand tool for making wooden shutter board	**6**	**14**	**-**	**-**
PC1. select appropriate personal protective equipment (P.P.E.s) for the task	-	-	-	-
PC2. check that all fixtures, consumables and materials are available for shutter making	-	-	-	-
PC3. carry out visual check to ensure materials for making shutters such as timber, plywood etc.are of good quality	-	-	-	-
PC4. use measurement and marking tools for marking	-	-	-	-
PC5. select and use regular hand tools such as hand saw, chisel, jack hammer, nailing hammer, hand drill and other tools efficiently	-	-	-	-
PC6. make wooden shutter panels using different types of joints such as dovetail, tenon & mortise, lap joints as per requirement	-	-	-	-
Carry out shuttering works in ruralconstruction for R.C.C footing,column, beam and slab	**18**	**42**	**-**	**-**
PC7. clean the shutter panels before using for shuttering work	-	-	-	-
PC8. apply release agents to sheathing material	-	-	-	-
PC9. check and ensure all tools, material, components are available as per requirements	-	-	-	-
PC10. check that fixing and fasteners are available as per requirement	-	-	-	-
PC11. position and provide necessary support for footing, column, beam and slab shuttering	-	-	-	-
PC12. plug all openings and gaps using appropriate materials	-	-	-	-
PC13. ensure water tightness of form by providing form sheet or necessary packing material	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. position and fix props properly and check for plumb, position and spacing	-	-	-	-
PC15. ensure tightness of tie rods, supports, and bracings	-	-	-	-
PC16. check erected formwork for line, level, alignment and plumb within tolerance limit	-	-	-	-
PC17. check the dimensional accuracy and right angle and take necessary corrective measures if required	-	-	-	-
PC18. ensure the RCC structure has gained sufficient strength before dismantling	-	-	-	-
PC19. dismantle formwork shutters sequentially as per standard practices	-	-	-	-
PC20. ensure that all the small components are stacked properly for further use	-	-	-	-
PC21. repair formwork material if required and ensure cleaning and proper stacking after dismantling	-	-	-	-
Carry out scaffoldingworks using bamboo/ballies orpipes and coupler for supporting rural construction activities	**6**	**14**	**-**	**-**
PC22. level area where scaffold need to be erected and check for ground compactness if required	-	-	-	-
PC23. select appropriate material for scaffolding as per requirement	-	-	-	-
PC24. erect scaffold sequentially as per requirement using locally available material (bamboo/ballies or pipes and coupler)	-	-	-	-
PC25. check for stability, rigidity and necessary support to scaffold	-	-	-	-
PC26. fix walk boards , guard rails and other components on working platform	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. dismantle scaffold sequentially and stack material properly after removing for further use	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3606
NOS Name	Carry out shuttering works in rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry-Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3607: Carry out manual concreting in rural construction

Description

This unit describes the skills and knowledge to carry out manual concreting in rural construction

Scope

The scope covers the following :

- Carry out preparatory work before pouring of manual concrete
- Carry out pouring and compaction of concrete
- Finish and cure concrete

Elements and Performance Criteria

Carry out preparatory workbefore pouring of manual concrete

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

PC1. ensure surface is prepared appropriately and address any deviation in slope / alignment or undulations in surface prior to concreting

PC2. ensure rectification of any gaps in formwork to avoid leakage

PC3. check for misalignment in formwork/reinforcement and ensure proper cover for reinforcement is provided

PC4. use potable water for concrete preparation

PC5. visually check the grade of cement and manufactures date prior to use

PC6. visually check quality of aggregate and ensure it is free from organic impurities

PC7. check and ensure concrete is mixed as per specification

PC8. visually assess the concrete mix for usability and workability

Carry out pouring and compaction of concrete

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

PC9. ensure standard pouring height for concrete is maintained throughout pouring

PC10. ensure pouring of concrete takes place in specified layers

PC11. pour concrete to maintain specified levels & cover for steel reinforcement

PC12. use tamping rod/hand concrete vibrator for compaction of concrete

Finish and cure concrete

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

PC13. spread the concrete as per requirements using appropriate tools and technique

PC14. push excess concrete towards the formwork for easy removal

PC15. level the edges and corners as per requirement using appropriate tools for semi-finished concrete

PC16. smoothen the surface using appropriate tools, to ensure a consistent and durable final finish

PC17. apply a final finish on the surface as per requirements

PC18. ensure cleaning and removal of spilled concrete is carried out after work

PC19. ensure proper curing of concrete by marking and monitoring of the curing time

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for concreting work
KU2. personal protection including the use of related safety gears & equipment
KU3. safety rules and regulations for handling and storing required concreting tools, equipment and materials
KU4. standard sizes of concreting tools such as measuring tape/rule, vibrator, shovels, rakes, screeding board / tools and tamping tools (hand, rolling), different types of floats; their use, upkeep and maintenance
KU5. precaution while working in wet concrete area
KU6. basic principles of measurement
KU7. basic properties of concrete including weight, slump & mix proportions
KU8. various type and grade of cement used, effect of water /cement ratio and type of aggreg
KU9. sequence of concrete pouring and placing
KU10. manual mixing of concrete and nominal mix proportions
KU11. cover to reinforcement with respect to size of reinforcement
KU12. how to avoid shrinkage cracks in concrete
KU13. construction and expansion joints
KU14. appropriate technique for pouring of concrete in the form of layers as per the specification
KU15. technique to avoid air pockets or voids while concreting
KU16. appropriate technique for screeding of concrete
KU17. appropriate technique for floating of concrete surface
KU18. appropriate technique and extent to which construction joints must be provided
KU19. importance of finishing concrete after initial setting of concrete/semi-finished stage
KU20. importance and use of releasing agents on the formwork
KU21. curing process as per the specification / based on type of concreting works
KU22. how to protect concrete surface from direct contact with sun and prevent damage
KU23. different type of defects in concrete

Generic Skills (GS)

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

GS1. basic numeracy skills
GS2. read sketches for the task
GS3. read sign boards, and safety tags
GS4. speak in one or more language, preferably one of the local language at the site
GS5. communicate orally and effectively with co-workers & subordinates

GS6. decide whether the workplace is safe for working
GS7. plan work and organize required resources
GS8. complete work as per agreed time schedule and quality
GS9. optimize resources efficiently
GS10. minimize wastage in the workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory workbefore pouring of manual concrete	**12**	**28**	**-**	**-**
PC1. ensure surface is prepared appropriately and address any deviation in slope / alignment or undulations in surface prior to concreting	-	-	-	-
PC2. ensure rectification of any gaps in formwork to avoid leakage	-	-	-	-
PC3. check for misalignment in formwork/reinforcement and ensure proper cover for reinforcement is provided	-	-	-	-
PC4. use potable water for concrete preparation	-	-	-	-
PC5. visually check the grade of cement and manufactures date prior to use	-	-	-	-
PC6. visually check quality of aggregate and ensure it is free from organic impurities	-	-	-	-
PC7. check and ensure concrete is mixed as per specification	-	-	-	-
PC8. visually assess the concrete mix for usability and workability	-	-	-	-
Carry out pouring and compaction of concrete	**6**	**14**	**-**	**-**
PC9. ensure standard pouring height for concrete is maintained throughout pouring	-	-	-	-
PC10. ensure pouring of concrete takes place in specified layers	-	-	-	-
PC11. pour concrete to maintain specified levels & cover for steel reinforcement	-	-	-	-
PC12. use tamping rod/hand concrete vibrator for compaction of concrete	-	-	-	-
Finish and cure concrete	**12**	**28**	**-**	**-**
PC13. spread the concrete as per requirements using appropriate tools and technique	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. push excess concrete towards the formwork for easy removal	-	-	-	-
PC15. level the edges and corners as per requirement using appropriate tools for semi-finished concrete	-	-	-	-
PC16. smoothen the surface using appropriate tools, to ensure a consistent and durable final finish	-	-	-	-
PC17. apply a final finish on the surface as per requirements	-	-	-	-
PC18. ensure cleaning and removal of spilled concrete is carried out after work	-	-	-	-
PC19. ensure proper curing of concrete by marking and monitoring of the curing time	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3607
NOS Name	Carry out manual concreting in rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3621: Select, harvest and prepare the bamboo for the construction works

Description

This unit describes the skills and knowledge required for selection, harvesting and treatment of bamboo used for construction works.

Scope

The scope covers the following :

- Carry out selection and harvesting of bamboo
- Perform treatment of bamboo

Elements and Performance Criteria

Carry out selection and harvesting of bamboo

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

PC1. identify different types and species of bamboo

PC2. select the appropriate bamboo for the construction work based on physical description, length, diameters, gaps between rings (nodes), and wall thickness (not less than 12mm) of the bamboo.

PC3. ensure wall thickness of bamboo selected is not less than 12mm

PC4. identify recommended culm and clump for harvesting bamboo using ‘horse foot technique

PC5. use jigs and tools for harvesting bamboo without damaging upcoming tender shoots

Perform treatment of bamboo

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

PC6. perform preparatory activity prior to the treatment of bamboo such as cleaning of culms

PC7. set up the “Bamboo treatment plant” for in-situ treatment of bamboo as per applicability

PC8. carry out different methods for the treatment of bamboo such as soaking methods, injecting method, boiling method and/ or pressure treatment

PC9. prepare chemical-water solution in specified ratio for the treatment of the bamboo

PC10. check and prepare the pressure gauge for pressure treatment of the bamboo

PC11. attach the bamboo to the machine/ pump of the treatment plant as per the specifications

PC12. perform the treatment of the bamboo as per recommended pressure and procedures

PC13. carry out grading and storing of treated culm/ bamboo as per the specification

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

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

KU3. personal protection including the use of related safety gears & equipment
KU4. various species of bamboo used for construction works
KU5. maturity age for bamboo for use in construction works
KU6. pros and cons of using bamboo as construction material
KU7. checks of straightness of bamboo
KU8. appropriate season for harvesting of bamboo
KU9. harvesting bamboo using horse foot technique, utilizing jigs & tools for harvesting bamboo
KU10. types of bamboo treatment adopted
KU11. knowledge on locally available bamboo based wall construction components
KU12. various methods of bamboo treatment CCB, boric and borax , alum, salt treatment and other traditional method i.e. cow urine, soaking, pressure treatment & sourcing of treatment media(chemicals)
KU13. relative merits and demerits of the various treatment processes
KU14. relative merits and demerits of the various treatment processes
KU15. brouchery treatment plant for in-situ treatment of bamboo members
KU16. heavy treatment plant-pressure treatment for bamboo members
KU17. environment aspect and bamboo treatment, including safe disposal of the waste chemicals
KU18. sorting, storing and stacking of bamboo as per use
KU19. planning and organizing of work, tool and accessories for use in bamboo construction

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and organize required resources
GS8. manage resources
GS9. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out selection and harvesting of bamboo	**9**	**21**	**-**	**-**
PC1. identify different types and species of bamboo	-	-	-	-
PC2. select the appropriate bamboo for the construction work based on physical description, length, diameters, gaps between rings (nodes), and wall thickness (not less than 12mm) of the bamboo.	-	-	-	-
PC3. ensure wall thickness of bamboo selected is not less than 12mm	-	-	-	-
PC4. identify recommended culm and clump for harvesting bamboo using 'horse foot technique	-	-	-	-
PC5. use jigs and tools for harvesting bamboo without damaging upcoming tender shoots	-	-	-	-
Perform treatment of bamboo	**21**	**49**	**-**	**-**
PC6. perform preparatory activity prior to the treatment of bamboo such as cleaning of culms	-	-	-	-
PC7. set up the "Bamboo treatment plant" for in-situ treatment of bamboo as per applicability	-	-	-	-
PC8. carry out different methods for the treatment of bamboo such as soaking methods, injecting method, boiling method and/ or pressure treatment	-	-	-	-
PC9. prepare chemical-water solution in specified ratio for the treatment of the bamboo	-	-	-	-
PC10. check and prepare the pressure gauge for pressure treatment of the bamboo	-	-	-	-
PC11. attach the bamboo to the machine/ pump of the treatment plant as per the specifications	-	-	-	-
PC12. perform the treatment of the bamboo as per recommended pressure and procedures	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. carry out grading and storing of treated culm/ bamboo as per the specification	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3621
NOS Name	Select, harvest and prepare the bamboo for the construction works
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3622: Select, stack and perform visual quality checks on bamboo used for construction purpose

Description

This unit describes the skills and knowledge required for selection, stacking and performing visual quality checks of bamboo for use in construction.

Scope

The scope covers the following :

- Carry out selection, stacking and performing visual quality checks of treated bamboo for use in construction

Elements and Performance Criteria

Carry out selection, stacking and performing visual quality checks of treated bamboo for use in construction

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

PC1. perform visual checks and confirm that bamboo is of recommended species and of required age

PC2. select bamboo for use in different parts of a structure

PC3. check and confirm straightness of bamboo members

PC4. check for maximum to minimum diameter of the members, wall thickness of bamboo, internode distance, internode distance to diameter ratio

PC5. perform visual checks f and confirm that the treatment process is acceptable as per the instruction manual

PC6. ensure sorting, stacking and storage of treated bamboos members as per their use

PC7. carry out visual quality checks for shrinkage post component production

PC8. carry out visual quality checks on available types of bamboo/bamboo based mats to ensure they are in accordance with standards quality requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

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

KU3. personal protection including the use of related safety gears & equipment

KU4. method of sorting, storing and stacking of bamboo as per use

KU5. type of bamboo species used in construction works

KU6. maturity age for bamboo for use in construction works

KU7. pros and cons of using bamboo as construction material

KU8. instruction manual for bamboo treatment
KU9. knowledge on locally available bamboo based wall construction components
KU10. planning and organizing of work, tool and accessories for use in bamboo construction
KU11. knowledge about the different steps to construction of a bamboo joint
KU12. check for straightness in the construction components

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and organize required resources
GS8. manage resources
GS9. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out selection, stacking and performing visual quality checks of treated bamboo for use in construction	**30**	**70**	**-**	**-**
PC1. perform visual checks and confirm that bamboo is of recommended species and of required age	-	-	-	-
PC2. select bamboo for use in different parts of a structure	-	-	-	-
PC3. check and confirm straightness of bamboo members	-	-	-	-
PC4. check for maximum to minimum diameter of the members, wall thickness of bamboo, internode distance, internode distance to diameter ratio	-	-	-	-
PC5. perform visual checks f and confirm that the treatment process is acceptable as per the instruction manual	-	-	-	-
PC6. ensure sorting, stacking and storage of treated bamboos members as per their use	-	-	-	-
PC7. carry out visual quality checks for shrinkage post component production	-	-	-	-
PC8. carry out visual quality checks on available types of bamboo/bamboo based mats to ensure they are in accordance with standards quality requirements	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3622
NOS Name	Select, stack and perform visual quality checks on bamboo used for construction purpose
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3623: Cut, shape, drill and join treated bamboo for making of mat, posts, joints, ties, beams and bracing used for building construction

Description

This unit describes the skills and knowledge required for cutting, shaping drilling and jointing of treated bamboo members for making of mat, posts, joints, ties, beams and bracing used for building construction

Scope

The scope covers the following :

- Carry out cutting, shaping drilling and jointing of treated bamboo members for making of mat, posts, joints, ties, beams and bracing used for building construction

Elements and Performance Criteria

Carry out cutting, shaping drilling and jointing of treated bamboo members for making of mat, posts, joints, ties, beams and bracing used for building construction

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

PC1. read and interpret the drawing relevant to bamboo construction works

PC2. list out the components required for all the members and label them as per specification

PC3. ensure the treated bamboo for any signs of damage is free from damages

PC4. cut the posts, horizontal members, diagonal bracings, etc. as per drawing and label them (joint numbers

PC5. mark a template for truss making on the ground as per the drawings

PC6. cut the treated bamboo to size of components for rafters, ties, struts, wind bracings raking members and purlins- number the member ends

PC7. make 10mm diameter holes in the appropriate locations and numbers as per the drawing using hand auger or power drills

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

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

KU3. personal protection including the use of related safety gears & equipment

KU4. knowledge on locally available bamboo based wall construction components

KU5. pros and cons for using bamboo as construction material

KU6. planning and organizing of work, tool and accessories for use in bamboo construction

KU7. knowledge about pros and cons of using tools for drilling and tying bamboos

KU8. knowledge about the different steps to construction of a bamboo joint.

KU9. check for straightness in the construction components

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. read checklist of components
GS5. speak in one or more language, preferably one of the local language at the site
GS6. orally and effectively communicate with co-workers & subordinates
GS7. decide on whether the workplace is safe for working
GS8. plan work and organize required resources
GS9. manage resources
GS10. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out cutting, shaping drilling and jointing of treated bamboo members for making of mat, posts, joints, ties, beams and bracing used for building construction	**30**	**70**	**-**	**-**
PC1. read and interpret the drawing relevant to bamboo construction works	-	-	-	-
PC2. list out the components required for all the members and label them as per specification	-	-	-	-
PC3. ensure the treated bamboo for any signs of damage is free from damages	-	-	-	-
PC4. cut the posts, horizontal members, diagonal bracings, etc. as per drawing and label them (joint numbers	-	-	-	-
PC5. mark a template for truss making on the ground as per the drawings	-	-	-	-
PC6. cut the treated bamboo to size of components for rafters, ties, struts, wind bracings raking members and purlins- number the member ends	-	-	-	-
PC7. make 10mm diameter holes in the appropriate locations and numbers as per the drawing using hand auger or power drills	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3623
NOS Name	Cut, shape, drill and join treated bamboo for making of mat, posts, joints, ties, beams and bracing used for building construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3624: Construct simple rural buildings with treated bamboo

Description

This unit describes the skills and knowledge required for the construction of simple rural buildings with treated bamboo

Scope

The scope covers the following :

- Carry out preparatory works for construction of simple rural building.
- Carry out erection of superstructure with bamboo components.
- Carry out erection of roofing truss, purlins, ties, bracings etc.
- Fix roof cladding , CGI or bamboo sheets.

Elements and Performance Criteria

Carry out preparatory works for construction of simple rural building

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

PC1. read and interpret the sketches of the building

PC2. select tools required for the task and ensure they are in working condition

PC3. set out the layouts as per sketches/drawings

PC4. ensure transfer of loading points as per the layouts using water level tubes, plumb bobs to check 90 degree.

PC5. ensure proper protection of bamboo members from moisture when in contact with ground

PC6. connect base of the bamboo member to a stone/concrete foundation/ top of toe wall as per the sketches

PC7. ensure appropriate protection of bamboo posts, ties and bracings

Carry out erection of superstructure with bamboo components

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

PC8. plan and organise work resources for construction of superstructure

PC9. sort different components and stack them as per use

PC10. use appropriate Personal Protective Equipment (P.P.E.s) for the task

PC11. ensure work place is clear for undertaking the super-structure work

PC12. place and anchor the posts at base and tie them at roof, lintel and sill level

PC13. fix the bracings by fitting all joints with MS bolts (10mm) and tying with GI wire, nylon ropes or equivalent materials

PC14. confirm placement of door and window frames as per the drawing

PC15. carry out erection of simple bamboo mat walls or Ekra as per specification/ instruction

PC16. carry out plastering of the bamboo mats with cement stabilised mud /cement sand mortar, or plaster reinforced with chicken wire mesh as per applicability

Carry out erection of roofing truss, purlins, ties, bracings etc.

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

PC17. plan and organise the sequence work for erection of roof truss
PC18. identify the labelled components as per specifications
PC19. use PPE's for roof truss erection and follow precaution while working at height
PC20. place the truss on the vertical posts as per specifications/ drawings
PC21. fabricate trusses, based on the template, using the members cut to sizes as per specifications and joint numbering
PC22. connect all the joints using MS bolts and nuts with double washers and secure them by tying with GI wire, nylon rope or equivalent material
PC23. fix purlins and rafters simultaneously as the trusses are erected to ensure stability of the trusses in standing position.
PC24. fix all the roof framing components including all trusses ,purlins and wind bracing as per the drawing
PC25. bolt the joints with MS 10mm diameter bolt and tie with GI wires at all the locations where the purlins rest including the component joint.

Fix roof cladding, CGI or bamboo sheets

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

PC26. perform visual checks for the quality of roofing sheets
PC27. use PPE's for roof cladding and follow precaution while working at height
PC28. fix the roofing sheets to the bamboo truss using J – Hooks
PC29. fix ridge cap, valley and hip covers
PC30. fix GI gutters at eaves end for collection of rainwater.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement
KU2. safety rules and regulations for handling and storing required tools, equipment and materials
KU3. personal protection including the use of related safety gears & equipment
KU4. different ways to tie, screw and hammer bamboo members for a permanent construction.
KU5. process of checking horizontality and vertical straightness using water level tubes, plumb bobs and other methods used for checking 90 degree
KU6. knowledge on locally available bamboo based wall construction components
KU7. planning and organizing of work, tool and accessories for use in bamboo construction
KU8. knowledge about pros and cons of using tools for drilling and tying bamboos
KU9. knowledge about the different steps to construction of a bamboo joint
KU10. check for straightness in the construction components.
KU11. process of erection of superstructure
KU12. process of erection of bamboo roof truss
KU13. process of fixing of roof cladding, roof sheets on bamboo truss
KU14. roofing sheets used in bamboo buildings mostly GI or corrugated bamboo sheet

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. read checklist of components
GS5. speak in one or more language, preferably one of the local language at the site
GS6. orally and effectively communicate with co-workers & subordinates
GS7. decide on whether the workplace is safe for working
GS8. plan work and organize required resources
GS9. manage resources
GS10. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory works for construction of simple rural building	**6**	**14**	**-**	**-**
PC1. read and interpret the sketches of the building	-	-	-	-
PC2. select tools required for the task and ensure they are in working condition	-	-	-	-
PC3. set out the layouts as per sketches/drawings	-	-	-	-
PC4. ensure transfer of loading points as per the layouts using water level tubes, plumb bobs to check 90 degree.	-	-	-	-
PC5. ensure proper protection of bamboo members from moisture when in contact with ground	-	-	-	-
PC6. connect base of the bamboo member to a stone/concrete foundation/ top of toe wall as per the sketches	-	-	-	-
PC7. ensure appropriate protection of bamboo posts, ties and bracings	-	-	-	-
Carry out erection of superstructure with bamboo components	**9**	**21**	**-**	**-**
PC8. plan and organise work resources for construction of superstructure	-	-	-	-
PC9. sort different components and stack them as per use	-	-	-	-
PC10. use appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC11. ensure work place is clear for undertaking the super-structure work	-	-	-	-
PC12. place and anchor the posts at base and tie them at roof, lintel and sill level	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. fix the bracings by fitting all joints with MS bolts (10mm) and tying with GI wire, nylon ropes or equivalent materials	-	-	-	-
PC14. confirm placement of door and window frames as per the drawing	-	-	-	-
PC15. carry out erection of simple bamboo mat walls or Ekra as per specification/ instruction	-	-	-	-
PC16. carry out plastering of the bamboo mats with cement stabilised mud /cement sand mortar, or plaster reinforced with chicken wire mesh as per applicability	-	-	-	-
Carry out erection of roofing truss, purlins, ties, bracings etc.	**9**	**21**	**-**	**-**
PC17. plan and organise the sequence work for erection of roof truss	-	-	-	-
PC18. identify the labelled components as per specifications	-	-	-	-
PC19. use PPE's for roof truss erection and follow precaution while working at height	-	-	-	-
PC20. place the truss on the vertical posts as per specifications/ drawings	-	-	-	-
PC21. fabricate trusses, based on the template, using the members cut to sizes as per specifications and joint numbering	-	-	-	-
PC22. connect all the joints using MS bolts and nuts with double washers and secure them by tying with GI wire, nylon rope or equivalent material	-	-	-	-
PC23. fix purlins and rafters simultaneously as the trusses are erected to ensure stability of the trusses in standing position.	-	-	-	-
PC24. fix all the roof framing components including all trusses ,purlins and wind bracing as per the drawing	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. bolt the joints with MS 10mm diameter bolt and tie with GI wires at all the locations where the purlins rest including the component joint.	-	-	-	-
Fix roof cladding, CGI or bamboo sheets	**6**	**14**	**-**	**-**
PC26. perform visual checks for the quality of roofing sheets	-	-	-	-
PC27. use PPE's for roof cladding and follow precaution while working at height	-	-	-	-
PC28. fix the roofing sheets to the bamboo truss using J – Hooks	-	-	-	-
PC29. fix ridge cap, valley and hip covers	-	-	-	-
PC30. fix GI gutters at eaves end for collection of rainwater.	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3624
NOS Name	Construct simple rural buildings with treated bamboo
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3625: Follow seismic and wind safety protection measures for bamboo buildings

Description

This unit describes the skills and knowledge required for following the seismic and wind safety protection measures for bamboo buildings

Scope

The scope covers the following :

- Carry out the seismic and wind safety protection measures in bamboo buildings

Elements and Performance Criteria

Preparatory works for construction of simple rural building

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

PC1. place the seismic and wind bracing members at the specified location and as per recommended orientation in the super structure

PC2. carry out specified placement of the diagonal bracing members in the roof structure and carry out a recommended jointing

PC3. carry out winding of GI or equivalent ropes at joints to avoid stress concentration during seismic and high winds

PC4. fix J hook fitting to avoid high wind suction of CGI sheets

PC5. fix metal arresters to avoid lifting of roofing sheets in very high wind areas

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement

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

KU3. personal protection including the use of related safety gears & equipment

KU4. sorting, storing and stacking of bamboo as per use

KU5. pros and cons of using bamboo as construction material

KU6. pros and cons of using bamboo as construction material

KU7. maturity age for bamboo for use in construction works

KU8. instruction manual for bamboo treatment

KU9. knowledge on locally available bamboo based wall construction components

KU10. planning and organizing of work, tool and accessories for use in bamboo construction

KU11. knowledge about pros and cons of using tools for drilling and tying bamboos

KU12. knowledge about the different steps to construction of a bamboo joint

KU13. check for straightness in the construction components

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. read checklist of components
GS5. speak in one or more language, preferably one of the local language at the site
GS6. orally and effectively communicate with co-workers & subordinates
GS7. decide on whether the workplace is safe for working
GS8. plan work and organize required resources
GS9. manage resources
GS10. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preparatory works for construction of simple rural building	**30**	**70**	**-**	**-**
PC1. place the seismic and wind bracing members at the specified location and as per recommended orientation in the super structure	-	-	-	-
PC2. carry out specified placement of the diagonal bracing members in the roof structure and carry out a recommended jointing	-	-	-	-
PC3. carry out winding of GI or equivalent ropes at joints to avoid stress concentration during seismic and high winds	-	-	-	-
PC4. fix J hook fitting to avoid high wind suction of CGI sheets	-	-	-	-
PC5. fix metal arresters to avoid lifting of roofing sheets in very high wind areas	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3625
NOS Name	Follow seismic and wind safety protection measures for bamboo buildings
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3626: Construct buildings using Compresses Stabilized Earth Block (CSEB)

Description

This unit describes the skills and knowledge required for construction of building using Compresses Stabilized Earth Block (CSEB)

Scope

The scope covers the following :

- Carry out preparatory activities for masonry work
- Carry out visual checks on CSEB and test soil types to prepare stabilized sand-mud mortar for carrying out masonry, pointing and plastering work
- Lay CSEB for construction of load bearing / non-load bearing wall, columns.
- Carry out fixing of door and window frames in CSEB masonry wall of different block sizes
- Carry out pointing in CSEB masonry of different block sizes

Elements and Performance Criteria

Carry out preparatory activities for masonry work

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

PC1. read and interpret the sketches for super-structure works

PC2. select required tools for the task and ensure they are in working condition

PC3. select appropriate Personal Protective Equipment (P.P.E.s) for the task

PC4. ensure work place is clear for undertaking the super-structure work

PC5. select and secure flat areas to stack CSEB blocks.

PC6. carry out preparation of working platform for mortar mixing

PC7. lay the zero course(without mortar) of CSEB masonry as per sketches/drawings

PC8. visually check the CSEB for defect such as breaking joints

PC9. check horizontal and vertical straightness using water level tubes, plum bobs and other methods

PC10. select and prepare/procure appropriate tools for testing of soil

PC11. secure sources for sand, mud and water supply

Carry out visual checks on CSEB and test soil types to prepare stabilized sand-mud mortar for carrying out masonry, pointing and plastering work

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

PC12. select appropriate soil and sand for preparation of stabilized sand-mud mortar

PC13. conduct field tests and in select cases, may be laboratory tests

PC14. procure sand and soil of required quantities

PC15. perform visual checks on the CSEB for strength, soundness, moisture absorption prior to use

PC16. screen selected soil and sand before use

PC17. select appropriate tools and equipment as per the tasks ensuring they are in working condition

Lay CSEB for construction of load bearing / non-load bearing wall, columns in stretcher and English bond for different block sizes

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

PC18. estimate the quantity of CSEB and mortar material required for English and stretcher bond-full blocks, half and 3/4th blocks

PC19. perform visual checks for quality of CSEB prior to use

PC20. ensure fine aggregate and mud are sieved as per specification/instruction

PC21. ensure proper stacking of CSEB of required numbers as per requirement at the work place

PC22. ensure soaking of CSEB prior to commencement of work

PC23. break blocks to required shape and size using appropriate tools following appropriate safety measures

PC24. lay and fix CSEB blocks for walls both load bearing and non-load bearing wall masonry for columns and walls in English (up to 1&1/2 bricks wall)and stretcher bond for different block sizes

PC25. construct T, L, Crossing, opening ends in CSEB of different sizes

PC26. provide vertical reinforcement at corners and in opening jambs and horizontal bands as per sketches for seismic protection

PC27. check vertical and horizontal alignment using appropriate tools

PC28. maintain line and level of each course of CSEB work using wooden / aluminum straight edge sections

PC29. set out 90° corners using builder's square or 3-4-5 method and check right angles of corner, T, crossing

PC30. ensure adequate curing of constructed masonry structure

Carry out fixing of door and window frames in CSEB masonry wall of different block sizes

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

PC31. mark, set out location of frames of doors, windows and ventilators

PC32. check and carry out proper alignment of the frame and hold in position with temporary support

PC33. check the holdfast position and grout it (1:1.5:3 CC) between CSEB blocks in wall

PC34. fill the gap between wall and door frame with non-shrink material/grout fix wooden/metal panels for doors, windows and ventilators

Carry out pointing in CSEB masonry of different block sizes

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

PC35. ensure that joints are cleaned and surface is wet prior to pointing

PC36. ensure lime/cement-sand-mud mortar for pointing is prepared as per specification (10% stabilization)

PC37. fill joints with cement/lime stabilized mortar (10% stabilization) to obtain specified type of pointing

PC38. carry out flush pointing using recommended tools and technique

PC39. ensure specified curing of pointing works

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement
KU2. safety rules and regulations for handling and storing required tools, equipment and materials
KU3. personal protection including the use of related safety gears & equipment
KU4. • various tools required for work:
• • Different types of Trowels (of the right blade size)
• • Masons Hammer
• • Blocking Chisel
• • Mashing Hammer
• • Jointers
• • Measuring tape
• • Level and level pipe
• • Wire net for screening
KU5. the mix of cement/lime for different soil conditions
KU6. check on CSEB for strength, soundness, moisture absorption before use
KU7. procedure for storage of the raw materials, soil cement, lime and water
KU8. procedure for laying CSEB in English and stretcher bond
KU9. procedure for construction of T, L, Crossing, opening ends in CSEB of different sizes
KU10. process of reinforcing T, L, Crossing, opening ends in CSEB in different seismic zones
KU11. zone specific seismic reinforcements as per drawing: Vertical reinforcement at corners and in opening jambs & horizontal bands, PB, SB, LB & RB- applicability in zone V, IV and III
KU12. process of fixing of doors ,windows and ventilators in CSEB wall
KU13. mortar used for pointing in CSEB masonry
KU14. process of pointing in CSEB masonry
KU15. process of curing in CSEB masonry

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. basic numeracy skills
GS3. speak in one or more language, preferably one of the local language at the site
GS4. orally and effectively communicate with co-workers & subordinates
GS5. decide on whether the workplace is safe for working
GS6. plan work and organize required resources
GS7. manage resources
GS8. complete work as per agreed time schedule and quality

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory activities for masonry work	**3**	**7**	**-**	**-**
PC1. read and interpret the sketches for super-structure works	-	-	-	-
PC2. select required tools for the task and ensure they are in working condition	-	-	-	-
PC3. select appropriate Personal Protective Equipment (P.P.E.s) for the task	-	-	-	-
PC4. ensure work place is clear for undertaking the super-structure work	-	-	-	-
PC5. select and secure flat areas to stack CSEB blocks.	-	-	-	-
PC6. carry out preparation of working platform for mortar mixing	-	-	-	-
PC7. lay the zero course(without mortar) of CSEB masonry as per sketches/drawings	-	-	-	-
PC8. visually check the CSEB for defect such as breaking joints	-	-	-	-
PC9. check horizontal and vertical straightness using water level tubes, plum bobs and other methods	-	-	-	-
PC10. select and prepare/procure appropriate tools for testing of soil	-	-	-	-
PC11. secure sources for sand, mud and water supply	-	-	-	-
Carry out visual checks on CSEB and test soil types to prepare stabilized sand-mud mortar for carrying out masonry, pointing and plastering work	**6**	**14**	**-**	**-**
PC12. select appropriate soil and sand for preparation of stabilized sand-mud mortar	-	-	-	-
PC13. conduct field tests and in select cases, may be laboratory tests	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. procure sand and soil of required quantities	-	-	-	-
PC15. perform visual checks on the CSEB for strength, soundness, moisture absorption prior to use	-	-	-	-
PC16. screen selected soil and sand before use	-	-	-	-
PC17. select appropriate tools and equipment as per the tasks ensuring they are in working condition	-	-	-	-
Lay CSEB for construction of load bearing / non-load bearing wall, columns in stretcher and English bond for different block sizes	**9**	**21**	**-**	**-**
PC18. estimate the quantity of CSEB and mortar material required for English and stretcher bond-full blocks, half and 3/4th blocks	-	-	-	-
PC19. perform visual checks for quality of CSEB prior to use	-	-	-	-
PC20. ensure fine aggregate and mud are sieved as per specification/instruction	-	-	-	-
PC21. ensure proper stacking of CSEB of required numbers as per requirement at the work place	-	-	-	-
PC22. ensure soaking of CSEB prior to commencement of work	-	-	-	-
PC23. break blocks to required shape and size using appropriate tools following appropriate safety measures	-	-	-	-
PC24. lay and fix CSEB blocks for walls both load bearing and non-load bearing wall masonry for columns and walls in English (up to 1&1/2 bricks wall)and stretcher bond for different block sizes	-	-	-	-
PC25. construct T, L, Crossing, opening ends in CSEB of different sizes	-	-	-	-
PC26. provide vertical reinforcement at corners and in opening jambs and horizontal bands as per sketches for seismic protection	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. check vertical and horizontal alignment using appropriate tools	-	-	-	-
PC28. maintain line and level of each course of CSEB work using wooden / aluminum straight edge sections	-	-	-	-
PC29. set out 90° corners using builder's square or 3-4-5 method and check right angles of corner, T, crossing	-	-	-	-
PC30. ensure adequate curing of constructed masonry structure	-	-	-	-
Carry out fixing of door and window frames in CSEB masonry wall of different block sizes	**6**	**14**	**-**	**-**
PC31. mark, set out location of frames of doors, windows and ventilators	-	-	-	-
PC32. check and carry out proper alignment of the frame and hold in position with temporary support	-	-	-	-
PC33. check the holdfast position and grout it (1:1.5:3 CC) between CSEB blocks in wall	-	-	-	-
PC34. fill the gap between wall and door frame with non-shrink material/grout fix wooden/metal panels for doors, windows and ventilators	-	-	-	-
Carry out pointing in CSEB masonry of different block sizes	**6**	**14**	**-**	**-**
PC35. ensure that joints are cleaned and surface is wet prior to pointing	-	-	-	-
PC36. ensure lime/cement-sand-mud mortar for pointing is prepared as per specification (10% stabilization)	-	-	-	-
PC37. fill joints with cement/lime stabilized mortar (10% stabilization) to obtain specified type of pointing	-	-	-	-
PC38. carry out flush pointing using recommended tools and technique	-	-	-	-
PC39. ensure specified curing of pointing works	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3626
NOS Name	Construct buildings using Compresses Stabilized Earth Block (CSEB)
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

CON/N3603: Build structures using random rubble masonry for rural construction

Description

This unit describes the skills and knowledge required to build structures using random rubble in rural construction

Scope

The scope covers the following :

- Carry out preparatory work for rubble masonry
- Lay out coursed and un-coursed Random Rubble Masonry with undressed or hammer dressed stones
- Carry out flush /raised pointing in stone masonry

Elements and Performance Criteria

Carry out preparatory work for Rubble Masonry

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

PC1. ensure that the correct tools, and tackles are selected for use in the rubble Masonry

PC2. select appropriate personal protective equipment (P.P.E) for the task

PC3. roughly estimate amount of materials required to complete a rubble masonry work

PC4. ensure that the sub-base is prepared properly and surface is cleaned before laying the stone

PC5. identify and transfer required levels using appropriate tools prior to rubble masonry work

Lay out coursed and un coursedRandom Rubble Masonrywith undressed or hammer dressed stones

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

PC6. mix cement /lime/mud mortar for rubble masonry in specified ratio

PC7. check for workability and proportion of cement/lime/ mud mortar

PC8. prepare the sides, edges, bed of stone to ensure proper bonding of stones

PC9. ensure proper wetting of stones prior to laying

PC10. work with both undressed and hammer dressed stones as per the requirement

PC11. lay stones to build wall of un-course random rubble or course random rubble as per drawing/sketch

PC12. use through stones or bond stones at specified intervals

PC13. use large stones at the corners and at jambs to increase the strength

PC14. check horizontal and vertical alignment using appropriate tools

PC15. set out 90 corners using builders square or 3-4-5 method and check right angle if required

PC16. ensure proper curing of rubble masonry structure

Carry out flush/raisedpointing in stone masonry

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

PC17. perform raking of joints as specified prior to drying of bonding mortar

PC18. ensure that joints are cleaned and surface is wet prior to pointing

PC19. ensure lime/cement mortar for pointing is prepared as per specification
PC20. fill joints with appropriate mortar to obtain specified type of pointing
PC21. carry out flush/raised pointing as per specification using appropriate tools and technique
PC22. ensure proper curing of pointing

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic principles of measurement
KU2. standard size of random rubble masonry tools and equipment, their use, care and maintenance such as Measuring tape, trowels, floats, brushes, screed boards, straightedge, mortar boards and stands, shovels, hawks, joint rules, masons square, buckets, spade, volume box, scrapers, rammer
KU3. safety rules and regulations for handling and storing required masonry tools, equipment and materials
KU4. personal protection including the use of related safety gears & equipment
KU5. sketches for building brick and block work structures
KU6. standard practices for random rubble masonry work
KU7. reference levels on the wall and its importance
KU8. different types mortar requirements for the rubble masonry works as per the specification and aesthetic requirements
KU9. various techniques / procedures to work with undressed and hammer dressed stones used for un-course and course random rubble masonry
KU10. importance and purpose of using through/bond stones or their alternates
KU11. appropriate horizontal and vertical distance for providing bond stones
KU12. different mortar mix used for pointing
KU13. flushed and Raised types of pointing in stone masonry and its application
KU14. various pointing and raking tools and method of pointing

Generic Skills (GS)

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

GS1. read sketches for the task
GS2. read sign boards, and safety tags
GS3. basic numeracy skills
GS4. speak in one or more language, preferably one of the local language at the site
GS5. orally and effectively communicate with co-workers & subordinates
GS6. decide on whether the workplace is safe for working
GS7. plan work and Organize required resources
GS8. complete work as per agreed time schedule and quality
GS9. optimize resources efficiently

GS10. minimize wastage in the workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out preparatory work for Rubble Masonry	**5**	**15**	**-**	**-**
PC1. ensure that the correct tools, and tackles are selected for use in the rubble Masonry	-	-	-	-
PC2. select appropriate personal protective equipment (P.P.E) for the task	-	-	-	-
PC3. roughly estimate amount of materials required to complete a rubble masonry work	-	-	-	-
PC4. ensure that the sub-base is prepared properly and surface is cleaned before laying the stone	-	-	-	-
PC5. identify and transfer required levels using appropriate tools prior to rubble masonry work	-	-	-	-
Lay out coursed and un coursedRandom Rubble Masonrywith undressed or hammer dressed stones	**16**	**34**	**-**	**-**
PC6. mix cement /lime/mud mortar for rubble masonry in specified ratio	-	-	-	-
PC7. check for workability and proportion of cement/lime/ mud mortar	-	-	-	-
PC8. prepare the sides, edges, bed of stone to ensure proper bonding of stones	-	-	-	-
PC9. ensure proper wetting of stones prior to laying	-	-	-	-
PC10. work with both undressed and hammer dressed stones as per the requirement	-	-	-	-
PC11. lay stones to build wall of un-course random rubble or course random rubble as per drawing/sketch	-	-	-	-
PC12. use through stones or bond stones at specified intervals	-	-	-	-
PC13. use large stones at the corners and at jambs to increase the strength	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check horizontal and vertical alignment using appropriate tools	-	-	-	-
PC15. set out 90 corners using builders square or 3-4-5 method and check right angle if required	-	-	-	-
PC16. ensure proper curing of rubble masonry structure	-	-	-	-
Carry out flush/raisedpointing in stone masonry	**9**	**21**	**-**	**-**
PC17. perform raking of joints as specified prior to drying of bonding mortar	-	-	-	-
PC18. ensure that joints are cleaned and surface is wet prior to pointing	-	-	-	-
PC19. ensure lime/cement mortar for pointing is prepared as per specification	-	-	-	-
PC20. fill joints with appropriate mortar to obtain specified type of pointing	-	-	-	-
PC21. carry out flush/raised pointing as per specification using appropriate tools and technique	-	-	-	-
PC22. ensure proper curing of pointing	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N3603
NOS Name	Build structures using random rubble masonry for rural construction
Sector	Construction
Sub-Sector	Rural Infrastructure construction
Occupation	Masonry - Rural
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022

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)/element 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/element.

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 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.

Minimum Aggregate Passing % at QP Level : 70

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

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3601.Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction	30	70	-	-	100	15
CON/N3608.Install sanitary fitting and fixtures in rural toilets	30	70	-	-	100	20
Total	**60**	**140**	**-**	**-**	**200**	**35**

Elective: 1 General

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3602.Build brick / block masonry structures for rural construction	30	70	-	-	100	25
CON/N3604.Carry out IPS flooring in rural construction	30	70	-	-	100	10

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3605.Carry out reinforcement steel works for R.C.C structures in rural construction	30	70	-	-	100	10
CON/N3606.Carry out shuttering works in rural construction	30	70	-	-	100	10
CON/N3607.Carry out manual concreting in rural construction	30	70	-	-	100	10
Total	**150**	**350**	**0**	**0**	**500**	**65**

Elective: 2 Bamboo structure

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3621.Selection, harvesting and treatment of bamboo used for construction works	30	70	-	-	100	10
CON/N3622.Selection, stacking & visual quality checks of bamboo used for construction purpose	30	70	-	-	100	5
CON/N3623.Cutting, shaping, drilling and jointing of treated bamboo for making of mat, posts, joints, ties, beams & bracing used for building construction	30	70	-	-	100	20
CON/N3624.Construction of simple rural buildings with treated bamboo	30	70	-	-	100	20
CON/N3625.Seismic and wind safety protection measures followed for bamboo buildings	30	70	-	-	100	10

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
Total	**150**	**350**	**0**	**0**	**500**	**65**

Optional: 1 Compresses Stabilized Earth Block (CSEB)

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3626.Construction of buildings using Compresses Stabilized Earth Block (CSEB)	30	70	-	-	100	15
Total	**30**	**70**	**0**	**0**	**100**	**15**

Optional: 2 Random Rubble Masonry (RRB)

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N3603.Build structures using random rubble masonry for rural construction	30	70	-	-	100	10
Total	**30**	**70**	**0**	**0**	**100**	**10**

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.