Model Curriculum

1. Rural Mason

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Masonry-Rural
REF ID: CON/Q3603, V1.0
NSQF LEVEL: 4

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

CONSTRUCTION SECTOR SKILLS COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Rural Mason' QP No. 'CON/Q 3603 NSQF Level 4'

Date of Issuance: March 21st, 2017

Valid up to: January 27th, 2019

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

Authorised Signatory
(Construction Skill Development Council)

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Rural Mason

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Rural Mason", in the "Construction" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Rural Mason**		
Qualification Pack Name & Reference ID. ID	CON/Q3603, v1.0		
Version No.	1.0	**Version Update Date**	27-01-2019
Pre-requisites to Training	Preferably 5th Standard with 2 years site experience in same occupation for Non trained worker		
Training Outcomes	**After completing this programme, participants will be able to:** • **Gain insight into Rural Mason job role and its career progression: -** General introduction to job role, role of a Rural Mason in construction industry along with the future possible career development provisions. • **Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction: -** Select and use tools and equipment and carry out marking of layout for foundation, walls, soak pits/septic tank and monitor the excavation works. • **Build brick / block masonry structures for rural construction:-** Select and use tools and equipment and construct masonry structure using brick/block for rural construction • **Build structures using random rubble masonry for rural construction :-** Select and use tools, materials and equipment and construct masonry wall, column, footing using random rubble masonry for rural construction • **Carry out IPS flooring in rural construction :-** Select and use tools, materials and equipment and carry out construction of IPS flooring works for rural construction • **Carry out reinforcement steel work for R.C.C structures in rural construction:-** Select and use tools, materials and equipment and carry out reinforcement steel works in rural construction • **Carry out shuttering works for R.C.C structures in rural construction: -** Select and use tools, materials and equipment and carry out shuttering in RCC structures in rural construction. • **Carry out manual concreting in rural construction:** - Select and use tools, materials and equipment and carry out manual concreting works in rural construction. • **Install sanitary fittings and fixtures for rural toilets**: - Select and use tools, materials and equipment and carry out installation of sanitary fittings and fixtures for rural toilets.		

This course encompasses 8 out of 8 National Occupational Standards (NOS) of "Rural Mason" Qualification Pack issued by "Construction Skill Development Council of India".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Introduction** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 00:00	• Role description/ functions of the job role • Expected personal attributes from the job role • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions on completion of the course	1. Classroom having seating requirement for 30 people. 2. Blackboard
2	**Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction** **Theory Duration** (hh:mm) 13:00 **Practical Duration** (hh:mm) 31:00 **Corresponding NOS Code** CON/N3601	**Theory:-** • Basic principles of measurement ,simple arithmetic's and conversion of units of measurement • Different tools and equipment required for layout marking , their use and maintenance • Different tools and equipment required for earthwork, their use and maintenance • Safe working practices followed for the work along with the use of appropriate PPE's for work. • Knowledge of how to use basic levelling tools in the masonry trade such as: Spirit level, water level, plumb bob, line thread • 3-4-5 method details and its use for squaring corners • Standard practices for layout of foundation, walls, columns, soak pits/septic tank etc. • Standard practices for earthwork activities. • Different sketches of layout of foundation and soak pit/septic tank etc. • Different types of foundation , importance and purpose of foundation • Knowledge about depth and plinth height in case of foundation • Soak pit / septic tank ,its importance and purpose • Knowledge about the suitable location and depth of soak pit / septic tank • work space requirement for excavating an area • Preparation of base and levelling in excavation works. **Demonstration/ Practical :-** • Demonstrate reading and interpreting details from the sketches/basic working drawing for excavation of foundations, soak pits/septic tanks etc.	1. Measuring tape 2. Trowels 3. Shovels 4. Spade 5. Chalk/powder for marking 6. Wheelbarrows 7. Plumb bob 8. Line string (line Dori) 9. Try square, 10. Spirit level 11. Steel or wooden scale 12. Rammers(hand held)

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Demonstrate selection of appropriate tools for excavation and verifying its serviceability. • Demonstrate appropriate PPE's for the task and check the workplace prior to marking. • Demonstrate the setting out of the layout for foundation, walls, columns, soak pits/septic tank etc. as per provided sketch. • Demonstrate the identification of transfer of levels as per requirement. • Demonstrate the marking out of the centre line of rooms by 3-4-5 method • Perform checks for the diagonals ensuring they are same in length. • Demonstrate the marking of centre line and the centre points about 2m away from the outer edge of excavation to act as guideline. • Demonstrate the marking of centre line for septic tank and checking of right angles at corners. • Demonstrate the marking of periphery of soak pits and identify centre point. • Demonstrate the monitoring of excavation works by ensuring desired slope and depth of excavation is maintained. • Demonstrate the compaction of surface upon excavation. • Demonstrate checks to ensure even dressing and compaction works in excavation. • Demonstrate checks for ensuring removal of gravels and uniform spreading of earth in layers for backfilling works. • Demonstrate checks for ensuring appropriate sprinkling of water over layers to be compacted and ensuring appropriate back filling of excavated pit, trench etc.	
3	**Build brick / block masonry structures for rural construction** **Theory Duration** (hh:mm) 17:00 **Practical Duration** (hh:mm) 39:00	**Theory:-** • Basic principles of measurement ,simple arithmetic's and conversion of units of measurement • Safe working practices followed for the work along with the use of appropriate PPE's for work • Sketches for brick/block work • standard specification of all masonry tools and equipment, their care and maintenance • how and carry out layout and marking for brick/block work	1. Measuring tape 2. Trowels 3. Floats 4. Brushes 5. screed 6. boards 7. straightedge 8. hand held concrete mixer 9. mortar boards and stands 10. shovels 11. spade

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code CON/N3602	• how to select and use tools such as measuring tape, trowels, floats, brushes, screed boards, straightedge, concrete mixer, mortar boards and stands, shovels, wheelbarrows, joint rules, mason's square, buckets, spade, etc. for masonry works • Type of raw material like cement, sand, aggregate, bricks/blocks; the size and physical attributes of bricks/blocks • Visual checks performed for assessing the brick • Basic levelling instruments like spirit level and water levelling, its setting and use • Determining vertical and horizontal alignment using thread line, spirit level, plumb bob etc. • 3-4-5 method for squaring corners • Method of carrying out checks for preparatory works like surface preparation • Techniques for cutting, chiselling of bricks as per closure using appropriate tools • Knowledge of cement mix proportion and its importance • Basic knowledge of water cement ratio • Knowledge of English, Flemish, rat trap ,stretcher and header bond with the sketches for these • Process of laying and fixing brick/blocks in position with uniform joints • Different mortar mix used for pointing • Process of pointing in brick work ❖ Flush pointing ❖ Recessed pointing • Various tools used for pointing and raking • Various method of curing of masonry structure • standard size of door / window, type of materials and fittings used • Process to align the frames and checking the holdfast position • Process to anchor frames to walls and fill gap between wall and frames **Demonstration/ Practical :-** • Reading and interpreting the sketches/basic working drawing for brick/block work • Selecting tools and performing checks to confirm their workability • Setting out the layout as per drawing/instruction and transferring levels as per layout	12. Wheelbarrows 13. mason's square 14. spade, 15. volume box, 16. Plumb bob 17. Line string (line Dori) 18. Try square, 19. Spirit level

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Performing visual checks for brick/block, cement, aggregate • Estimate the quantity of material required for work. • Demonstrate the breaking of bricks to required size and shape. • Build brick/block wall as per standards tolerance as per relevant drawing using English, Flemish, stretcher, Header and Rat trap bonds. • Demonstrate checks for maintaining line and level of each course of brick/block wall • Demonstrate setting out of 90° corners using builders square or 3-4-5 method. • Demonstrate raking and cleaning of joints as specified prior to drying of bonding mortar • Demonstrate preparation of lime/cement mortar for pointing as per specification • Demonstrate filling of joints with mortar to obtain specified type of pointing using appropriate tools. • Demonstrate the marking and set out of location of frames of doors, windows and ventilators. • Demonstrate checks and carry out proper alignment of the frame • Demonstrate fixing of holdfast and grouting between frame and walls • Demonstrate fixing of panels for doors, windows and ventilators	
4	**Build structures using random rubble masonry for rural construction** **Theory Duration** (hh:mm) 17:00 **Practical Duration** (hh:mm) 39:00 **Corresponding NOS Code** CON/N3603	**Theory:-** • Method of oral and written communication skills with co-workers, trade seniors while handling and carrying out visual checks on materials, , tools and equipment • How to interpret scope of concreting and IPS/Tremix flooring activities, material/ tools handling by adhering to instructions or consulting with seniors • Method of providing instruction to subordinates or reporting to seniors clearly and promptly • Seek necessary support and complete assigned tasks within stipulated time duration • Keep good relation and maintain well behaviour with co-workers **Demonstration/ Practical :-** The skills will be developed and practiced while carrying out following trade related activities in a predictable and familiar working condition	1. Hammer, 2. Brick chisel 3. Stone chisel 4. Bolster 5. Steel trowel, Float wooden/metal) 6. Spade (Phawda) 7. Mortar pan (Ghamela) 8. Pointer trowel 9. Tuck pointing trowel 10. Line and pins 11. Screed board 12. Jointers 13. Plumb bob 14. Line string (line Dori) 15. Try square, 16. Spirit level

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Selection of materials, tools or devices for defined purpose under concreting works and providing instructions to subordinates for the same. • Handling of tools, equipment and materials for concreting and IPS/Tremix flooring including efficiently communicating with co-workers for desired requirement as per specification • Carrying out concreting in precast and in-situ structures & IPS/Tremix flooring while working as a team to ensure optimum utilization of material and resources • Carrying out general concreting works utilizing the effort of co-workers. • Undertaking visual checks to assess the quality of material and check line, level and alignments of work • Selection and handing over of desired/ appropriate tools/ materials while assisting trade senior	17. Measuring tape 18. Steel or wooden scale 19. Lifting , appliances (wheel and rope, shackles, sling, belts) 20. Wheel barrows 21. Mixing plat form (3'x5') 22. Helmet 23. Face shield 24. Safety shoes
5	**Carry out IPS flooring in rural construction** **Theory Duration** (hh:mm) 14:00 **Practical Duration** (hh:mm) 34:00 **Corresponding NOS Code** CON/N3604	**Theory:-** • Standard practices for masonry works • Safe working practices followed for the work along with the use of appropriate PPE's for work • standard specifications of all tools and equipment required for IPS flooring • Procedure for preparation of sub base by watering and ramming. • Procedure for marking reference level and transferrin of levels. • Various type of aggregates, type and grade of cement used and effect of water /cement ratio. • Different grade of concrete • Procedure for manual mixing of concrete and nominal mix proportion. • Sequence of concrete pouring and placing. • Provision of cover for reinforcement w.r.t size of reinforcement • Procedure for pouring concrete in alternate panels. • Procedure for carrying out tamping of poured concrete • Procedure for avoiding shrinkage cracks in concrete • Different construction and expansion joints • Different tools used for grooving/providing expansion joints • Procedure for final trowelling of concrete for desired finish	1. Measuring tape 2. Trowels 3. Floats 4. Brushes 5. screed 6. boards 7. straight edge 8. hand held concrete mixer 9. mortar boards and stands 10. shovels 11. spade 12. Wheelbarrows 13. mason's square 14. spade, 15. volume box, 16. Plumb bob 17. Line string (line Dori) 18. Try square, 19. Spirit level 20. Tamping rod 21. vibrators

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		Demonstration/ Practical :- • Demonstrate the checks to be carried out for inspection of area prior to concreting • Ensure appropriate preparation of site. • Demonstrate checks for formwork to avoid leakage and deviation in slope and alignment in PCC • Demonstrate check to ensure proper cover for reinforcement. • Demonstrate marking and transfer of levels on floor for required thickness using appropriate tools. • Demonstrate checks to be performed for assessing the grade of cement, fine aggregate and concrete prior to use. • Demonstrate checks for assessing preparation of panels as per specified size and type. • Demonstrate fixing of glass, aluminium or brass strip in cement mortar with their tops at appropriate level and according to slope • Demonstrate pouring of concrete in alternate panels. • Demonstrate compaction and finishing of the concrete surface • Demonstrate cutting of groves for providing construction joints and expansion joints as per requirement • Demonstrate levelling of poured concrete to the specified levels maintaining required slope • Ensure curing of the finished floor.	
6	**Carry out reinforcement steel work for R.C.C structures in rural construction** **Theory Duration** (hh:mm) 17:00 **Practical Duration** (hh:mm) 39:00 **Corresponding NOS Code** CON/N3605	**Theory** • Safe working practices followed for the work along with the use of appropriate PPE's for work • Different sketches for R.C.C footing, column, beam and slab • Tools and equipment for measuring, marking and cutting re-bars • Measurement and marking method for cutting and bending • Types of stirrups • Hand tools for cutting and bending rebar manually • different types of cover block and their uses • different types of steel rods, length and diameter • different types of binding wire, thickness and uses • prevention of reinforcement from rusting	Hand Tools 1. Hack saw 2. Rail piece 3. Pointed chisel 4. Sledge hammer 5. Bending lever 6. Pin plate 7. Working bench 8. Binding hook 9. Hammer Measuring Instruments 10. Measurement tape General requirement

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• use of chairs, spacer bar, hanger bars • Tolerance for cutting and bending of rebar • Body postures for cutting and bending of rebar • Different types of ties (Slash tie, ring slash tie, hair-pin tie, ring hair- pin tie, crown tie, lap tie) • Sequence for tying of rebar for in-situ and pre-fabricated cages for footing , column, wall, beam and slab • insertion and fixing process for slab(one way & two way slab), beam, column, footing, wall • lapping length and importance of lapping for different diameter of re-bars • importance of clear cover while carrying out reinforcement works • Use of chairs, hanger bar, spacer bar **Demonstration/Practical:** • Demonstrate reading of details from bar bending sketch • Calculate cutting length of re-bars , number of chairs, spacer bars from sketch • Demonstrate selection of appropriate tools for cutting and bending of re-bars • Demonstrate cutting of rebar for a smaller diameter rebar using hand tool • Demonstrate cutting of rebar using power tools • Demonstrate stacking of re-bars after cutting and bending as per standards practices • Demonstrate insertion/ fixing of rebar for footing, column, beam and slab, place and fix on its position. • Demonstrate uniformity of space in between the bars, stirrups, link rod as per the drawing/sketches • Demonstrate staggering of lap for splicing • Demonstrate making of stirrups, chairs and hanger bar • Demonstrate bending of rebar for simpler shape such as L, U shape • Demonstrate tying of rebar using different ties • Demonstrate marking, placing, fixing and tying of stirrups for column, beam as per specified spacing • Demonstrate marking, placing, fixing and tying of rebar for wall and slab as per specified spacing	11. M.S, TOR steel, TMT steel Binding wires 12. Steel cutting blade 13. Mechanical coupler 14. Cover blocks 15. Wooden planks 16. Lifting appliance (Sling, Shackle, Belts) 17. Safety Helmet 18. Safety goggles 19. Safety shoes

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Demonstrate placing of cover block and fixing of chairs for maintaining uniform thickness • Demonstrate checks to be performed for quality of reinforcement work with reference to spacing, placement, straightness of bar, rigidity of ties etc .	
7	**Carry out shuttering works for R.C.C structures in rural construction** **Theory Duration** (hh:mm) 17:00 **Practical Duration** (hh:mm) 39:00 **Corresponding NOS Code** **CON/N3606**	**Theory:** • Basic shuttering drawings/sketches • Different tools used for shuttering works • Different measuring and marking tools used for shuttering works • standard size of all carpentry tools, materials and components, their selection and use • Importance of correct body postures • Safe working practices followed for the work along with the use of appropriate PPE's for work • Handling and maintenance of tools • different type of shuttering material such as timber, plywood, wooden batten, GI sheets and other material • Standard size of timber and plywood for shutter making purpose • visual checks for shuttering materials • use of water level tube • Types of joints – Dovetail, Tenon & Mortise, Lap joints, Half joints • Different types of knots used for tying bamboo, ballies • Procedure for carrying out shuttering for R.C.C structures such as footing, column, wall, slab, beam etc. • Procedure for providing support for shuttering works • General tolerance for shuttering works • Use of shuttering oil • Dismantling procedure of shuttering for R.C.C structures such as footing, column, wall, slab, beam etc. • Stripping time for removing shuttering of various R.C.C structural elements • Procedure for erecting and dismantling staging(bamboo/ballies, pipes and couplers) **Demonstration/ Practical :-** • Demonstrate reading drawings/ sketches related to shuttering work • Demonstrate visual checks for timber, plywood, wooden battens, GI sheets, bamboo/ballies etc. so they are of good quality	Hand tool 1. hand saw, 2. different types of chisel 3. jack hammer 4. nailing hammer, 5. hand drill 6. water level tube 7. spirit level 8. measuring tape 9. marking chalk/pencil

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Demonstrate selection and use of hand tools such as hand saw, chisel, jack hammer, nailing hammer, hand drill and other tools efficiently • Demonstrate cutting of timber and plywood as per measurement and marking • Demonstrate making of Dovetail joints, Tenon mortise joint, Lap joints • Demonstrate making of wooden shutter panels as per for shuttering works and application of shuttering oil • Demonstrate positioning and fixing and of shutter board and props. • Demonstrate checks for plumb, position and spacing ensuring tightness of tie rod, support and bracing. • Demonstrate checks of erected formwork for line, level and alignment are within tolerance limit • Demonstrate plugging of all gaps using appropriate materials and ensure water tightness of forms • Demonstrate dismantling of shuttering for column, wall, footing, beam and slab ensuring RCC gained sufficient strength • Demonstrate repairing of formwork • Demonstrate levelling of area for erection of scaffolding • Demonstrate erection of scaffold as per requirement and check for stability and rigidity of scaffold. • Demonstrate erection and dismantle of scaffold as per requirement and stacking of scaffold material upon dismantling	
8	**Carry out manual concreting in rural construction** **Theory Duration** (hh:mm) 14:00 **Practical Duration** (hh:mm) 34:00 **Corresponding NOS Code** **CON/N3607**	**Theory:** • standard practices for concreting work • safety rules and regulations for handling and storing required concreting tools, equipment and materials • Safe working practices followed for the work along with the use of appropriate PPE's for work • standard sizes of concreting tools such as measuring tape/rule, shovels, rakes, screeding board / tools and tamping tools (hand, rolling), different types of floats; their use, upkeep and maintenance • Various precaution taken while working in wet concrete area • Various type and grade of cement used type of aggregates • Effect of water cement ratio	1. Measuring tape 2. Trowels 3. Floats 4. Brushes 5. screed 6. boards 7. straight edge 8. hand held concrete mixer 9. mortar boards and stands 10. shovels 11. spade 12. Wheelbarrows 13. mason's square 14. spade, 15. volume box, 16. Plumb bob

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Basic properties of concrete including weigh and mix proportions • Need for providing cover to the reinforcement and its relation w.r.t size of reinforcement • Nominal mixes of concrete and manual mixing procedure for concrete • Procedure to avoid shrinkage cracks in concrete • Knowledge of expansion and construction joints in concrete and extent to which these must be provided. • Technique for spreading, floating and levelling of concrete. • Importance of finishing concrete after initial setting of concrete/semi-finished stage • Use of releasing oil and its importance • Process of curing concrete • Common defects in concrete **Demonstration/ Practical :-** • Demonstrate checks to ensure alignment in slope prior to concrete in formwork • Demonstrate checks for misalignment in formwork/reinforcement and ensure proper cover for reinforcement is provided • Demonstrate visual checks for cement, aggregate, water for concrete mixing. • Visually assess the concrete mix for usability and workability • Demonstrate pouring of concrete in layers maintaining standard height of pouring • Demonstrate compaction of concrete using tamping rod/concrete vibrators • Demonstrate spreading, compaction and levelling of concrete • Demonstrate removal of excess concrete. • Demonstrate levelling of edges and corners in concrete works • Demonstrate application of final finish and curing of concrete by marking and monitoring curing time.	17. Line string (line Dori) 18. Try square, 19. Spirit level 20. Tamping rod vibrators
9	**Install sanitary fittings and fixtures for rural toilets** **Theory Duration** (hh:mm) 11:00 **Practical Duration** (hh:mm) 25:00	• Theory: • Sketches for plumbing and sanitation system • Safe working practices followed for the work along with the use of appropriate PPE's for work • Different material in sanitary system (CI/GI/PVC pipes, etc.) • Basic sanitary fittings and fixtures like (taps, valves, clamps, elbows, toilet pans, traps, etc.)	1. Wrenches 2. Plier 3. screwdriver 4. pipe cutter 5. pipe bender 6. threading tool 7. Hacksaw 8. metal file 9. caulking tools 10. cutting, threading and

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code CON/N3608	• 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 • Techniques for cutting, bending and joining of fittings and fixtures • transferring levels using basic levelling devices • Sequence of pipe installation • Procedure for assembling of pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment • Procedure for connection of toilet with soak pit/septic tank and inspection chamber maintaining necessary gradient as per specification • Various defects in plumbing works like leakages, improper alignment, etc. • Test for checking the joints and fixtures for functionality and leakage **Demonstration/ Practical :-** • Demonstrate reading and understanding of the sketches of sanitary fittings and fixtures and their connection to soak pit/septic tank • Demonstrate selection of sanitary fittings and fixtures and perform checks to ensure their workability • Demonstrate checks to ensure building of toilet enclosure, bathing space, soak pits/septic tank as per drawings/sketches and necessary gradients • Demonstrate placing and fixing of concrete pre-cast rings for soak pits as per applicability • Demonstrate marking of location and position of pipe installations, connections, passage holes, and fixtures in structures, • Describe sequence of pipe installation • Demonstrate assembling of pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment • Demonstrate cutting of opening in structures for pipe fittings using hand tools • Demonstrate installation of pipe assemblies, fittings, and fixtures such as toilet pan using hand tools • Demonstrate checks to ensure maintenance of necessary gradient for toilet floor.	joining equipment

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Demonstrate connection of toilet with soak pit/septic tank and inspection chamber maintaining necessary gradient as per specification • Demonstrate test for checking the joints and fixtures for functionality and leakage. • Demonstrate trial check to ensure workability of entire system prior to use.	
	Total Duration **Theory Duration 128:00** **Practical Duration 280:00**	**Unique Equipment Required:** Measuring tape, Trowels, Shovels, Spade, Chalk/powder for marking, Wheelbarrows, Plumb bob, Line string (line Dori), Try square, Spirit level, Steel or wooden scale, Rammers(hand held), Floats, Brushes, screed, boards, straightedge, hand held concrete mixer, mortar boards and stands, mason's square, spade, volume box, Hammer, Brick chisel, Stone chisel, Bolster, Steel trowel, Float wooden/metal), Mortar pan (Ghamela), Pointer trowel, Tuck pointing trowel , Line and pins, Screed board , Jointers , Lifting , appliances (wheel and rope, shackles, sling, belts), Mixing plat form (3'x5'), Helmet , Face shield, Safety shoes , Tamping rod Vibrators, Hack saw, Rail piece, Pointed chisel, Sledge hammer, Bending lever, Pin plate, Working bench, Binding hook, M.S, TOR steel, TMT steel Binding wires, Steel cutting blade, Mechanical coupler, Cover blocks, Wooden planks, Lifting appliance (Sling, Shackle, Belts), Safety Helmet , Safety goggles, different types of chisel, jack hammer, nailing hammer, hand drill, water level tube, spirit level, marking chalk/pencil, Wrenches, Plier, screwdriver, pipe cutter, pipe bender, threading tool, Hacksaw, metal file, caulking tools, cutting, threading and joining equipment **Infrastructure** Class room for theory assessment with 30 study chairs , Workshop for practical assessment, Toilet/Urinals (Separate for gents and Ladies), Single phase power supply points, First aid kit, Tool box with lock and key	

Grand Total Course Duration: **408 Hours, 0 Minutes**

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

Trainer Prerequisites for Job role: "Rural Mason" mapped to Qualification Pack: "CON/Q3603, v1.0"

Sr. No.	Area	Details
1	**Description**	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "CON/Q3603".
2	**Personal Attributes**	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field
3	**Minimum Educational Qualifications**	ITI/12th standard pass
4a	**Domain Certification**	Trainer/Assessor-80% in each NOS of Qualification Pack "MEP/Q0102" or "MEP/Q0104" and Lead trainer/Lead Assessors- 90% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"
4b	**Platform Certification**	Trainer/Assessor-50% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"& 80% overall, Lead trainer/ Lead Assessors- 50% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"and overall 90%
5	**Experience**	i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12th pass minimum eight years of field experience and preferably two years of teaching Experience.

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	Rural Mason
Qualification Pack	CON/Q3603
Sector Skill Council	Construction

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training 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.

				Marks Allocation	
		Total Mark	Out Of	Theory	Skills Practical
CON/N3601: Mark layout for foundation, walls, soak pit/septic tank and monitor earthwork activities for rural construction	PC1.read and interpret the sketches for foundation works, soak pits/septic tank.	**100**	3	1	2
	PC2.select required tools for the task and ensure they are in working condition		3	1	2
	PC3.select appropriate Personal Protective Equipment (P.P.E.s) for the task				
	PC4.ensure work place is clear for marking the layout.		2	1	1
	PC5.set out the layouts as per sketches/drawings		4	1	3
	PC6.identify and transfer required levels using water level tube		3	1	2
	PC7.mark the center lines of the rooms by setting perpendiculars using 3-4-5 method and check right angle (90°) at corners.		8	3	5
	PC8.set out 90° corners using builders square or 3-4-5 method and check right angle		7	2	5
	PC9.Check the diagonals if they are equal		7	2	5
	PC10.extend the center lines and marks the center points about 2m away from the outer edge of excavation.		7	2	5
	PC11.mark the width of excavation from the plan		7	2	5
	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		7	2	5
	PC13.mark the periphery of soak pits /septic tanks for excavation by identifying the center point.		7	2	5
	PC14.check and ensure that excavation is carried out to the desired depth using appropriate tools		4	1	3
	PC15.check and ensure desired slope of earth is maintained during digging activity		3	1	2
	PC16.provide necessary support to vertical side of excavated area to avoid soil collapse as per applicability		3	1	2

	PC17.ensure earth is disposed from the excavated pit by using suitable tools and equipment such as spade, wheel barrows, pans etc.		5	1	4
	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		5	1	4
	PC20.Ensure compaction of base by ramming.				
	PC21. check and remove gravels, oversized aggregates ,organic matter from soil prior to be use in backfilling as per site conditions		3	1	2
	PC22.ensure earth is placed and spread maintaining uniform layers within tolerance limit of thickness		3	1	2
	PC23.ensure water is sprinkled uniformly over the layer to be compacted as and when required as per site conditions		3	1	2
	PC24.check and ensure ramming over the soil layer as per site conditions		3	1	2
	PC25.Check and ensure re-filling and compaction of excavated trenches, pits surrounding the structures or at necessary location as per soil site conditions		3	1	2
			100	**30**	**70**
CON/N3602: Build brick / block masonry structures for rural construction	PC 1.read and interpret the basic working drawings / sketches before the commencement of brick / block work	**100**	4	1	3
	PC2.select appropriate Personal Protective Equipment (P.P.E.s) for the task		2	1	1
	PC3.set out the layouts as per sketches/drawings		3	1	2
	PC4.identify and transfer required levels using appropriate tools		3	1	2

	PC5.estimate the quantity of raw material required such as brick/block, cement and fine aggregate required		3	1	2
	PC6.visual check for quality of bricks / blocks prior to use		2	1	1
	PC7.ensure fine aggregate is sieved as per requirement		2	1	1
	PC8.ensure proper stacking of bricks / blocks of required numbers as per requirement at the work place		1	0	1
	PC9.check and ensure the base surface is free of dust, dirt & debris prior to commencement of work		3	1	2
	PC10.ensure removal of all loose concrete laitance and roughening of the surface prior to laying of brick/block		3	1	2
	PC11.ensure soaking of brick/block and pre wetting of base surface prior to commencement of work		3	1	2
	PC12.select appropriate tools and equipment as per the tasks ensuring they are in working condition such as: o Different types of Trowels (of the right blade size) o Masons Hammer o Blocking Chisel o Mashing Hammer o Jointers		3	1	2
	PC13.break bricks to required shape and size using appropriate tools following appropriate safety measures.		3	1	2
	PC14.lay and fix bricks / blocks for columns, walls, soak pits /septic tanks		8	2	6
	PC15.check vertical and horizontal alignment using appropriate tools		6	2	4
	PC16.maintain line and level of each course of brickwork using wooden / aluminum straight edge sections		4	1	3
	PC17.set out 90° corners using builders square or 3-4-5 method and check right angle if required		4	1	3
	PC18.ensure proper curing of constructed masonry structure		3	1	2

	PC19.perform raking of joints as specified prior to drying of bonding mortar		3	1	2
	PC20.ensure that joints are cleaned and surface is wet prior to pointing		3	1	2
	PC21.ensure lime/cement mortar for pointing is prepared as per specification		3	1	2
	PC22.fill joints with appropriate mortar to obtain specified type of pointing		4	1	3
	PC23.carry out flush/recessed pointing using appropriate tools and technique		4	1	3
	PC24.ensure proper curing of pointing		3	1	2
	PC25.mark, set out location of frames of doors, windows and ventilators		4	1	3
	PC26.check and carry out proper alignment of the frame and hold in position with temporary support		4	1	3
	PC27.check the holdfast position and grout it between bricks / blocks of wall		4	1	3
	PC28.fill the gap between wall and door frame with non-shrink material/grout		4	1	3
	PC29.fix wooden/metal panels for doors, windows and ventilators		4	1	3
	Total		**100**	**30**	**70**
CON/N3603: Build structures using random rubble masonry for rural construction	PC1.ensure that the correct tools, and tackles are selected for use in the rubble Masonry	**100**	3	1	2
	PC2.select appropriate Personal Protective Equipment (P.P.E.s) for the task		3	1	2
	PC3.roughly estimate amount of materials required to complete a rubble masonry work		5	2	3
	PC4.ensure that the sub-base is prepared properly and surface is cleaned before laying the stone		4	1	3
	PC5.identify and transfer required levels using appropriate tools prior to rubble masonry work		5	1	4
	PC6. mix cement /lime/mud mortar for rubble masonry in specified ratio		3	1	2
	PC7. check for workability and proportion of cement/lime/ mud mortar		3	1	2

	PC8.prepare the sides, edges, bed of stone to ensure proper bonding of stones		5	2	3
	PC9.ensure proper wetting of stones prior to laying		3	1	2
	PC10.work with both undressed and hammer dressed stones as per the requirement		5	2	3
	PC11.lay stones to build wall of un-course random rubble or course random rubble as per drawing/sketch		6	2	4
	PC12.use through stones or bond stones at specified intervals		5	2	3
	PC13.use large stones at the corners and at jambs to increase the strength		5	2	3
	PC14.check horizontal and vertical alignment using appropriate tools		6	2	4
	PC15.set out 90° corners using builders square or 3-4-5 method and check right angle if required		6	2	4
	PC16.ensure proper curing of rubble masonry structure		3	1	2
	PC17.perform raking of joints as specified prior to drying of bonding mortar		4	1	3
	PC18.ensure that joints are cleaned and surface is wet prior to pointing		3	1	2
	PC19.ensure lime/cement mortar for pointing is prepared as per specification		4	1	3
	PC20.fill joints with appropriate mortar to obtain specified type of pointing		6	2	4
	PC21.carry out flush/raised pointing as per specification using appropriate tools and technique		10	3	7
	PC22.ensure proper curing of pointing		3	1	2
	Total		**100**	**30**	**70**
CON/N3604: Carry out IPS flooring in rural construction	PC1.inspect the work area prior to concreting, ensure leveling in case of any undulations observed on the surface prior to concreting	**100**	5	2	3
	PC2.select appropriate Personal Protective Equipment (P.P.E.s) for the task		3	1	2
	PC3.ensure surface is prepared appropriately and address any deviation in slope and alignment in PCC		6	2	4

	PC4.check the grade of cement prior to use in case of manual mixing		5	2	3
	PC5.ensure fine aggregate is sieved as per grade requirement		5	2	3
	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		8	2	6
	PC7.check that concrete is mixed in appropriate proportion		4	1	3
	PC8.visually assess the concrete mix for usability and workability		4	1	3
	PC9.ix the baton strip in cement mortar with their tops at appropriate level and according to slope		6	2	4
	PC10.ensure panels are made as per specified size		6	2	4
	PC11.pour concrete as per requirement up to approved floor level		6	2	4
	PC12.level poured concrete to the specified levels maintaining required slope.		15	5	10
	PC13.remove excess cement slurry and any marks on the surface		5	2	3
	PC14.level the concrete surface with a straight edge and to the required finish with a wooden float / trowel		10	2	8
	PC15.cut groves on concrete at specified intervals for construction joints.		4	1	3
	PC16.spread cement punning over the IPS concrete for smooth finish surface and allow it to soak into the concrete, as per requirement		4	1	3
	PC17.ensure curing of the finished floor surface for the specified time.		4	1	3
	Total		**100**	**30**	**70**
CON/N3605: Carry out Reinforcement steel works for R.C.C. structures in rural construction	PC1.read basic detail from the sketches / drawings	**100**	5	1.5	3.5
	PC2.calculate cutting length of rebar from the sketches/drawing		5	1.5	3.5
	PC3.calculate number of chairs, spacer bars requirement to be used		5	1.5	3.5
	PC4.plan for cutting of re-bars as per requirement		5	1.5	3.5
	PC5.select appropriate personal protective equipment (P.P.E.s) for the task		5	1.5	3.5

	PC6.select hand tools/power tools for cutting re-bars as per requirement.		5	1.5	3.5
	PC7.mark cutting length on rebar and cut rebar using hand/power tools		5	1.5	3.5
	PC8.select hand tools for bending rebars according to diameter of rebar to be bend		5	1.5	3.5
	PC9.mark length on rebar and bend re-bar as per the shape and dimensions given in the sketches including hooks		5	1.5	3.5
	PC10.maintain correct body posture while cutting and bending rebars manually or mechanically		2	1	1
	PC11.check for length, shape of rebars to ensure they are within the tolerance limit		5	1.5	3.5
	PC12.stack re-bars after cutting and bending as per standards practices		3	1	2
	PC13.select appropriate personal protective equipment (P.P.E.s) for the task		5	1.5	3.5
	PC14.select re-bars for placement as per the drawing/sketches		5	1.5	3.5
	PC15.follow correct method for insertion/ fixing of rebars for footing, column , beam and slab, place and fix on its position		5	1.5	3.5
	PC16.maintain uniform spacing between the bars, stirrups, link rod as per the drawing/sketches		5	1.5	3.5
	PC17.stagger the lap to avoid more than 50% of splicing		5	1.5	3.5
	PC18.tie reinforcement with binding wires as per drawing with specified spacing		5	1.5	3.5
	PC19.ensure that location and position of reinforcement and fixing ties to reinforcement are checked for accuracy		5	1.5	3.5
	PC20.place cover blocks and spacers are placed to maintain appropriate covers & spacing		5	1.5	3.5
	PC21.place and fix chairs at specified spacing to maintain correct thickness		5	1.5	3.5
	PC22.check quality of reinforcement work with reference to spacing, placement, straightness of bar, rigidity of ties etc.		5	1.5	3.5
	Total		**100**	**30**	**70**

CON/N3606: Carry out shuttering works for RCC structures in rural construction	PC1.select appropriate personal protective equipment (P.P.E.s) for the task	**100**	5	1.5	3.5
	PC2.check that all fixtures, consumables and materials are available for shutter making		2	1	1
	PC3.carry out visual check to ensure materials for making shutters such as timber, plywood etc. are of good quality		3	1	2
	PC4.use measurement and marking tools for marking		2	0.5	1.5
	PC5.select and use regular hand tools such as hand saw, chisel, jack hammer, nailing hammer, hand drill and other tools efficiently		3	1	2
	PC6.make wooden shutter panels using different types of joints such as dovetail, tenon & mortise, lap joints as per requirement.		5	1.5	3.5
	PC7.clean the shutter panels before using for shuttering work		4	1	3
	PC8.apply release agents to sheathing material				
	PC9.check and ensure all tools, material, components are available as per requirements		4	2	2
	PC10.check that fixing and fasteners are available as per requirement				
	PC11.position and provide necessary support for footing, column, beam and slab shuttering.		15	4.5	10.5
	PC12.plug all openings and gaps using appropriate materials		5	1.5	3.5
	PC13.ensure water tightness of form by providing form sheet or necessary packing material		5	1.5	3.5
	PC14.position and fix props properly and check for plumb, position and spacing		5	1.5	3.5
	PC15.ensure tightness of tie rods, supports, and bracings				
	PC16.check erected formwork for line, level, alignment and plumb within tolerance limit		3	1	2
	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		3	1	2

	PC19.dismantle formwork shutters sequentially as per standard practices		12	3	9
	PC20.ensure that all the small components are stacked properly for further use		4	1	3
	PC21.repair formwork material if required and ensure cleaning and proper stacking after dismantling				
	PC22.level area where scaffold need to be erected and check for ground compactness if required		2	1	1
	PC23.select appropriate material for scaffolding as per requirement		2	1	1
	PC24.erect scaffold sequentially as per requirement using locally available material (bamboo/ballies or pipes and coupler)		6	2	4
	PC25.check for stability, rigidity and necessary support to scaffold		4	1	3
	PC26.fix walk boards , guard rails and other components on working platform		2	1	1
	PC27.dismantle scaffold sequentially and stack material properly after removing for further use		4	1	3
	Total		**100**	**30**	**70**
CON/N3607: Carry out manual concreting in rural construction.	PC1.ensure surface is prepared appropriately and address any deviation in slope / alignment or undulations in surface prior to concreting	**100**	5	1	4
	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		5	1	4
	PC4.use potable water for concrete preparation		5	2	3
	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		5	2	3
	PC8.visually assess the concrete mix for usability and workability				
	PC9.ensure standard pouring height for concrete is maintained throughout pouring		5	1	4
	PC10.ensure pouring of concrete takes place in specified layers		5	1	4

	PC11.pour concrete to maintain specified levels & cover for steel reinforcement		10	2	8
	PC12.use tamping rod/hand concrete vibrator for compaction of concrete		10	3	7
	PC13.spread the concrete as per requirements using appropriate tools and technique		10	2	8
	PC14.push excess concrete towards the formwork for easy removal		5	1	4
	PC15.level the edges and corners as per requirement using appropriate tools for semi-finished concrete		10	2	8
	PC16.smoothen the surface using appropriate tools, to ensure a consistent and durable final finish		10	3	7
	PC17.apply a final finish on the surface as per requirements		5	2	3
	PC18.ensure cleaning and removal of spilled concrete is carried out after work		5	1	4
	PC19.ensure proper curing of concrete by marking and monitoring of the curing time		5	2	3
	Total		**100**	**30**	**70**
CON/N3608: Install sanitary fittings and fixtures in rural toilets.	PC1.read and understand sketches of sanitary fittings and fixtures and their connection to soak pit/septic tank	**100**	5	1.5	3.5
	PC2.select sanitary fixtures and carry out checks to ensure workability as per requirement		5	1.5	3.5
	PC3.check toilet enclosure, bathing space, soak pits/septic tank are built as per drawings/sketches and necessary gradients.		5	1.5	3.5
	PC4.place and fix pre-cast concrete rings for soak pits as per applicability		5	1.5	3.5
	PC5.locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels		5	1.5	3.5
	PC6.establish the sequence of pipe installations		5	1.5	3.5
	PC7.assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment		10	3	7
	PC8.cut openings in structures to accommodate pipes and pipe fittings, using hand tools		10	3	7

	PC9.install pipe assemblies, fittings, and fixtures such as toilet pan using hand tools		15	4.5	10.5
	PC10.maintaining necessary gradient for toilet floor		5	1.5	3.5
	PC11.connect toilet with soak pit/septic tank and inspection chamber maintaining necessary gradient as per specification		10	3	7
	PC12.test the joints and fixtures for proper functioning		5	1.5	3.5
	PC13.check the overall system for proper functioning prior to commissioning by carrying out trial run		10	3	7
	PC14.clear the work area after completion of work		5	1.5	3.5
	Total		**100**	**30**	**70**