









Model Curriculum

QP Name: Helper Shuttering Carpenter

QP Code: CON/Q0301

QP Version: 2.0

NSQF Level: 2

Model Curriculum Version: 1.0

Construction Skill Development Council of India | | Construction Skill Development Council of India (CSDCCI), CPB – 103 & 104, Block-4B, DLF corporate Park, Phase – III, MG Road Gurugram – 122002 Near Guru Dronacharya Metro Station









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Training Parameters

Sector	Construction Skill Development Council of India
Sub-Sector	Real Estate and Infrastructure Construction
Occupation	Shuttering Carpentry
Country	India
NSQF Level	2
Aligned to NCO/ISCO/ISIC Code	NCO-2015/9313.0401
Minimum Educational Qualification and Experience	5th Standard Pass
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	24/07/2019
Next Review Date	24/07/2023
NSQC Approval Date	22/08/2019
QP Version	Version number 2.0
Model Curriculum Creation Date	19/06/2020
Model Curriculum Valid Up to Date	24/07/2023
Model Curriculum Version	Version number 1.0
Minimum Duration of the Course	254 hrs
Maximum Duration of the Course	300 hrs







Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Identify different materials, tools and equipment used for shuttering carpentry and scaffolding works.
- Shift and stack various materials and tools used in shuttering carpentry and scaffolding work.
- Identify hand tools used for cutting, planing and drilling of timber/plywood.
- Perform cutting, planing and drilling of timber/plywood.
- Identify different components of scaffold
- Erect a temporary scaffold up to 3.6 metres height
- Dismantle and stack a temporary scaffold up to 3.6 metres height.
- Identify various hazards at construction site.
- Use PPE's for shuttering carpentry and scaffolding task.
- Perform safe waste disposal at construction site.
- Use different tools for manual earthwork.
- Describe the process of excavating a pit/ trench of desired depth/ slope, length and width.
- Explain the process of backfilling of excavated pit/trench.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	4:00 hrs	00:00			4:00 hrs
CON/N0305 Identify, shift and stack tools, materials and equipment relevant to shuttering carpentry and scaffolding NOS Version No.1.0 NSQF Level 2	04:00 hrs	20:00 hrs			24:00 hrs
Shift and stack materials, tools and equipment relevant to shuttering carpentry and scaffolding	04:00 hrs	20:00 hrs			24:00 hrs
CON/N0306 Use hand tools for cutting, planing, and drilling of timber/plywood NOS Version No. 1.0 NSQF Level 2	24:00 hrs	106:00 hrs			130:00 hrs
Demonstrate the use of hand tools for cutting, planning, and drilling of timber/plywood	24:00 hrs	106:00 hrs			130:00 hrs









CON/N0101 Erect and dismantle temporary scaffold up to 3.6 meter height NOS Version No. 1.2 NSQF Level 2	12:00 hrs	36:00 hrs	 	48:00 hrs
Perform erection and dismantle of temporary scaffold up to 3.6 m height	12:00 hrs	36:00 hrs	 	48:00 hrs
CON/N9001 Work according to personal health, safety and environment protocol at construction site NOS Version No.1.3 NSQF Level 2	12:00 hrs	36:00 hrs	 	48:00 hrs
Follow safety norms as defined by organization, adopt healthy and safe work practices	12:00 hrs	36:00 hrs	 	48:00 hrs
Total Duration	56:00 hrs	198:00 hrs		254:00 hrs







The table lists the modules and their duration corresponding to the Optional NOS of the QP.

Option 1: Manual Earthwork

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CON/N0104 Carryout manual earthwork at construction site NOS Version No.1.1 NSQF Level 2	10:00 hrs	36:00 hrs			46:00 hrs
Perform manual earthwork at construction site	10:00 hrs	36:00 hrs			46:00 hrs
Total Duration	10:00 hrs	36:00 hrs			46:00 hrs







Module Details

Module 1: Bridge Module: Introduction to Helper shuttering carpenter

Terminal Outcomes:

- Explain the role and responsibilities of Helper shuttering carpenter.
- Identify the career progression options for Helper shuttering carpenter.

Duration: 04:00	Duration: 00:00			
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes			
 Describe the role and responsibilities of a helper shuttering carpenter. Recall the basic terms used in the shuttering carpentry occupation. Explain the career progression options of a helper shuttering carpenter. 				
Classroom Aids:				
Computer, printer, projector, white board/ flip chart, marker and duster				
Tools, Equipment and Other Requirements				
N/A				







Module 2: Shift and stack materials, tools and equipment relevant to shuttering carpentry and scaffolding *Mapped to CON/N0305*

Terminal Outcomes:

- Identify different materials, tools and equipment used for shuttering carpentry and scaffolding work.
- Shift and stack various materials and tools used in shuttering carpentry and scaffolding work.

Duration: 04:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 List the hand tools and power tools such as claw hammer, hand saw, hack saw, wooden planners, measuring tape, nailing hammer, try square, plumb bob and other relevant tools used in shuttering carpentry works. List the basic carpentry materials such as timbers, plywood, runner pieces of different size, wooden battens and other relevant materials used in shuttering carpentry works. List the types of consumable materials used in shuttering work such as nails of different size, masking tape, cotton waste, cotton and nylon line thread, cotton waste and their optimum use. Describes the types of wood such as hard wood and soft wood including their common defects. Describe the types and thickness of plywood such as commercial, water proof, marine plywood etc. Explain the types and use of lifting slings, shackles and lifting belts used for lifting wooden and metallic materials. State the permissible stacking height and various stacking methods for each shuttering carpentry and scaffolding materials. Discuss basic components of formwork and their standard sizes. Describe the storing and the handling technique of tools. Explain the methods of up-keeping, repairing and maintenance of tools Describe the procedure used to protect shuttering and scaffolding components from weathering action. 	 Select hand tools and power tools such as claw hammer, hand saw, hack saw, wooden planners, measuring tape, nailing hammer, try square, plumb bob and other relevant tools used in shuttering carpentry works. Select the basic materials such as timber, plywood, runner pieces of different size, wooden battens and other relevant materials and consumables used for shuttering carpentry works. Demonstrate safe stacking and storing of hand tools and power tools relevant to shuttering carpentry works. Demonstrate safe stacking of various shuttering carpentry and scaffolding materials as per standard practices. Select different types of slings, shackles and lifting belts in case of mechanical lifting and shifting. Demonstrate erection of signage and barricades to prevent unauthorized entrance.
Computer, printer, projector, white board/ flip chart, r	narker and duster
Tools, Equipment and Other Requirements	

Claw Hammer ,Ball Pin Hammer ,Handsaw ,Tenon saw ,Wooden Jack Planner ,Iron Jack Planner, Wooden Marking Gauge, Wooden Mortise Gauge, Auger ,Farmer Chisel, Mortise Chisel ,Cutting Player ,Screw Driver, Star Screw Driver, Marking Knife / Scribe, Wooden Mallet, Oil Stone (Rough / Smooth), Cutting Chisel ,







Centre Punch, Bench Vice, Hacksaw Frame with blade, Triangle file, Drill Bit, Ring Spanner, Double End Spanner, Flat File, Half Round File, Hand held circular saw, Hand held zig saw, Hand drill machine, Table mounted saw, Planing machine, Power drilling machine, Masking tape, Nylon line thread, Nails, Spirit Level, Steel Measuring Tape, Plumb Bob, water level tube, Tri-Square, Safety shoes, Safety Goggles, Safety Helmet, Cotton Hand – Gloves, Tools Bag, Safety Belt, Face Mask, Safety Shoes (Assorted Size), Ear Muff







Module 3: Demonstrate the use of hand tools for cutting, planing, and drilling of timber/plywood *Mapped to CON/N0306*

Terminal Outcome:

- Identify hand tools used for cutting, planing and drilling of timber/plywood.
- Perform cutting, planing and drilling of timber/plywood.

Duration: 24:00	Duration: 106:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 List different types of hand tools required for cutting, planning and drilling in timber/plywood. Describe the different types of measuring and marking tools and their use in making the shuttering boards. Identify different types of timber joints with their areas of application. Explain seasoning process and state it's importance. Describe the procedure for making shuttering boards 	 Select hand tools required for cutting, planning and drilling in timber/plywood. Demonstrate use of hand saw for cutting and sizing of timber/ plywood. Demonstrate the use of wooden planers for planning the timber and finishing the rough surface. Demonstrate use of hand auger of different diameter for drilling in timber and plywood. Perform measurement and marking on timber/plywood using measuring and marking tools. Demonstrate making of different timber joints such as lap joint, mortis and tenon joints, dovetail joints and housing joints using appropriate hand tools.
Classroom Alds:	

Computer, printer, projector, white board/ flip chart, marker and duster

Tools, Equipment and Other Requirements

hand held circular saw, hand held zig saw, hand drill machine, table mounted saw, planing machine, Claw Hammer, Ball Pin Hammer, Handsaw, Tenon saw, Wooden Jack Planner, Iron Jack Planner, Wooden Marking Gauge, Farmer Chisel, Mortise Chisel, Marking Knife / Scribe, Wooden Mallet, Cutting Chisel, Bench Vice, Hacksaw Frame with blade, Flat File, Half Round File, Safety shoes, Safety Goggles, Safety Helmet, Cotton Hand – Gloves, Tools Bag, Safety Belt, Face Mask, Safety Shoes (Assorted Size), Ear Muff, Spirit Level, Steel Measuring Tape, Plumb Bob, Tri-Square







Module 4: Perform erection and dismantle of temporary scaffold up to 3.6 m height

Mapped to CON/N0101

Terminal Outcome:

- Identify different components of scaffold.
- List tools, materials components required for erection of 3.6 meter scaffold.
- Erect a temporary scaffold up to 3.6 metres height.
- Dismantle and stack a temporary scaffold up to 3.6 metres height.

Duration: 12:00	Duration: 36:00				
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes				
 Explain scaffolding and its purpose. List the common materials and tools used for erection of scaffolding (pipe, cup lock (vertical and ledgers), H- frames, bamboo and balli. List the functions of different hand tools like hammer, spanner, pulleys, hooks, ropes, etc., used for erection/ dismantling of scaffolds. List the visual checks to be carried out on the scaffolding components to ascertain their usability. Explain the functions of materials, components and accessories used in scaffolding. Explain the methods adopted during the erection of the scaffold to ensure its safety. Explain various checks to be done on completion of erection of scaffolds, such as verticality check, stability check and so on. Explain the sequence and standard procedure to, dismantle the whole scaffold and stack their components. 	 Select different components used in temporary scaffolding such as base, toe board, guard rails, platform, walkways and ladder. Demonstrate preparation of scaffolding base for a scaffold up to 3.6 m height. Demonstrate erection of a scaffold (up to 3.6 m height) using pipes and couplers/ cup lock system/ H frame using appropriate hand tools. Demonstrate the process of conducting verticality check, stability check and rigidity check. Demonstrate the dismantling and stacking of scaffold. 				
Classroom Aids:	an allow and durates				
Computer, printer, projector, white board/ flip chart, marker and duster					
Lioois, Equipment and Other Requirements					
Mason's line (unlock scaffolding components (set) 40 NB pines Swivel coupler Fixed clamp Steel waters					
Steel walkways, Aluminium/ GI ladder, , Helmet , Safe	ty shoes , Safety belt, Cotton hand gloves, Goggles				

Safety net, Reflective jackets, Safety message boards







Module 5: Follow safety norms as defined by organization, adopt healthy and safe work practices *Mapped to CON/N9001*

Terminal Outcome:

- Identify various hazards at construction site.
- Use PPE's for shuttering carpentry and scaffolding task.
- Perform safe waste disposal at construction site.

Duration: 12:00	Duration: 36:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Explain the types of hazards at the construction sites and identify the hazards specific to the shuttering carpentry and scaffolding works. Recall the safety control measures and actions to be taken under emergency situation. Explain the classes of fire and types of fire extinguishers. Explain the importance of participation of workers in safety drills. Explain the reporting procedure to the concerned authority in case of emergency situations. Describe the standard procedure for handling, storing and stacking of material, tools, equipment and accessories. Explain the purpose and importance of vertigo test at construction site. List out basic medical tests required for working at construction site. Explain the types and benefits of basic ergonomic principles, which should be adopted while carrying out specific task at the construction sites. 	 Demonstrate the operating procedure of the fire extinguishers. Demonstrate different methods involved in providing First aid to the affected person. Use PPEs as per work requirements during shuttering carpentry and scaffolding job. Demonstrate vertigo test. Demonstrate safe waste disposal practices followed at construction site. Demonstrate safe housekeeping practices.
Classroom Alds:	amputor Trado sposifis sparts Safatu tags Safatu
black/ write board, marker, Projector/LED Monitor, Co	imputer, trade specific charts, safety tags, safety
Notice board, registers and other teaching aids	

Tools, Equipment and Other Requirements

Safety Helmets, Face shield, Overalls, Knee pads, Safety shoes, Safety belts, Safety harness, Safety Gloves, Safety goggles, Particle masks, Ear Plugs, Reflective jackets, Fire Extinguisher, Fire prevention kit, First Aid box, Safety tags, Safety Notice board







Option 1

Module 6: Perform manual earthwork at construction site Mapped to CON/N0104

Terminal Outcome:

- Use different tools for manual earthwork.
- Demonstrate excavation and backfilling of a pit/trench as per instruction.

Duration: 10:00	Duration: 36:00				
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes				
 Explain the function of different tools used for manual excavation such as spade, pick axe, shovel etc. Describe the preparatory works, carried out prior to excavation of pit/trench. Explain the standard procedure of excavation and maintaining required slope, length, width and depth of the excavated pit. List the types of hand operated compaction equipment - rammers, vibratory plates, hand-rollers and explain their application. Explain the methods to excavate a pit/ trench of desired depth/ slope, length and width. Define the standard procedure to backfill the trench and then to compact it using hand operated compactors 	 Select hand tools and power tools required for cutting earth and cleaning excavated pit. Demonstrate the process of excavation of a pit/trench maintaining required slope, length, width and depth of the excavation using appropriate tools. Demonstrate the process of backfilling and compacting of pit/trench. 				
Classroom Aids:					
Computer, printer, projector, white board/ flip chart, m	narker and duster				
Tools, Equipment and Other Requirements					
Trowel, Pointing Trowel, Shovel, Mortar Pan, Spade, Pi	ck axe, GI bucket 5L capacity, Wheel Barrow, Lime				
powder, Wooden pegs, Hammer, Hard broom, Source of water, Ladder, Measuring tape, Mason's line, Hand					
roller, Plate vibrator, Power source, Helmet, Safety sho	es , Cotton hand gloves, Goggles, Reflective jackets,				







Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational	Specialization	Relevant Industry Experience		Training Experience		Remarks
Qualification		Years	Specialization	Years	Specialization	
Post- Graduation/Graduation in Engineering	M. Tech in Civil/B. Tech in civil	Half Year	Civil Engineering	0	Civil Engineering	As a pre- requisites for new
Diploma	Diploma in Civil	One Year	Civil Engineering	0	Civil Engineering	entrant, no prior
Graduation/ Ex. Army /ITI /12 th pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 th pas	Two Years	Working as shuttering carpenter/Shuttering carpentry domain /supervisory work of Shuttering carpentry domain	0	Working as shuttering carpenter/Shuttering carpentry domain /supervisory work of Shuttering carpentry domain	experience in training /assessment is mandatory. However if someone with prior experience in requisite domain joins, experience will be measured in terms of relevant industry experience

Trainer Certification		
Domain Certification	Platform Certification	
Trainer- 70 % in each NOS of Qualification Pack "CON/Q0301 v 2.0" & 80% overall	Trainers - 70% in each NOS of Qualification Pack "MEP/Q2601" and 80% overall	



Assessor Requirements





Assessor Prerequisites						
Minimum Educational	Specializa tion	Relevant Industry Experience		Training/Assessment Experience		Remarks
Qualification		Years	Specialization	Years	Specialization	
Post- Graduation/Graduat ion in Engineering	M. Tech in Civil/B. Tech in civil	One year	Civil Engineering	0	Civil Engineering	As a pre- requisites for new
Diploma	Diploma in Civil	Two years	Civil Engineering	0	Civil Engineering	entrant, no prior
Graduation/ Ex. Army /ITI /12 th pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 th pas	Three years	Working as shuttering carpenter/Shutte ring carpentry domain /supervisory work of Shuttering carpentry domain	0	Working as shuttering carpenter/Shutter ing carpentry domain /supervisory work of Shuttering carpentry domain	experienc e in training /assessme nt is mandator y. However if someone with prior experienc e in requisite domain joins, experienc e will be measured in terms of relevant industry experienc e

Assessor Certification		
Domain Certification	Platform Certification	
Assessor- 70% in each NOS of Qualification Pack "CON/Q0301 v 2.0" & 80% overall ,	Assessor-80% in each NOS of Qualification Pack "MEP/Q2701", and overall 80%	







Assessment strategy

Assessment system Overview

Assessment is done through CSDCI affiliated Assessment Agencies. Assessors are trained & certified by CSDCI after training of assessors program. Assessments is conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas. The assessment will have both theory and practical components in 20:80 ratio for Helper shuttering carpenter job role.

During the practical task, trainees are assessed on their workmanship, quality of finished product and time management .They will be graded for all their assessments based on the approved assessment strategy which is signed off by CSDCI. The Assessor submits an assessment plan to CSDCI prior to assessments

The assessment plan contains the following information:

- What will be assessed, i.e. the competency based on each NOS based on theory and practical questions
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- duration of assessment
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- The criteria for decision making i.e. those aspects that will guide judgments and
- Where appropriate, any supplementary criteria used to make a judgment on the level of performance.

Testing Environment

Training partner shares the batch start date and end date, number of trainees and the job role.

Assessment will be fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue/test center.

The knowledge/theory assessments is conducted with proper seating arrangements with enough space between the candidates to prevent copying.

Question set for theory and practical will be distributed to each candidate by the Assessor. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on his theoretical knowledge of the subject. The skill /practical assessments will be conducted in the approved test centers. The training provider will ensure adequate tools and materials are available to conduct the practical test.

If number of candidates are more than 30, more assessors will be organized on same day to complete the assessment.

The assessment has to comprise of two components, namely:

- 1. Knowledge assessment (theory/viva assessment)
- 2. Skill assessment (practical/hands-on skill assessment)







Mode of assessment

- 1. Demonstration/Practical for Performance /Skill Assessment
- 2. Synoptic multiple choice question test
- 3. Viva For Knowledge Assessment

Performance/skill assessment: The performance/skill assessment will be conducted through demonstration/practical

For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.

The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.

Knowledge Assessment: The knowledge assessments are conducted through written test/ viva.

Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which are prepared externally and externally marked, meaning by agency having no link with training partners. The test may be conducted by the assessor in the oral mode, if required, considering the lack of reading and comprehending acumen (skills) of trainees. In such cases, the assessor will mention it on top of the MCQ submitted to CSDCI.

The assessment strategy, weightage and duration of assessment for helper shuttering carpenter is summarized below:

Assessment Type	Formative or Summative	Strategies	Weightage	Duration (hours)
Knowledge	Summative	MCQ/Viva	20	1.0
skill	Summative	Structured practical task	80	5.0

Assessment Quality Assurance framework

CSDCI has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criteria under knowledge and skill. The criteria ensures quality assurance as it ensures valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment body develop questions based on CSDCI issued assessment criteria.







Evidences in the form of answer sheets in case of knowledge assessments are collected. For skill assessments videos and photographs are prepared as evidence. These are submitted by the assessor to the assessment agency. CSDCI does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.

The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit is conducted by CSDCI to monitor assessment.

Methods of Validation

Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, ID verification is carried out. Aadhar card number is part of registering the candidate for training. This forms the basis of further verification during the assessment.

Assessor conducts the assessment through theory and practical questions developed in accordance with the assessment criteria and guidelines issued by CSDCI. This too is verified by random audits carried out by CSDCI.

Evidences for assessments are to be collected and submitted to CSDCI for verification as per demand.

Assessment agency is responsible to put details in SIP. CSDCI will also validate the data and result received from the assessment agency.

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by CSDCI assessment team. After upload, only CSDCI can access this data. CSDCI approves the results within five days after which results are uploaded on SIP by Assessment Agency.



References





Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training .
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.







Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
CSDCI	Construction Skill development Council of India
MCQ	Multiple Choice Question