



# Model Curriculum

## 1. Shuttering Carpenter- System

**SECTOR:** Construction

**SUB-SECTOR:** Real Estate and Infrastructure Construction

**OCCUPATION:** SHUTTERING CARPENTRY

**REF ID:** CON/Q0304, 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: **Shuttering Carpenter-System** QP No: **'CON/Q 0304 NSQF Level 4'**

Date of Issuance: December 31st, 2015

Valid up to: May 31st, 2017

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

  
Authorised Signatory  
(Construction Skill Development Council)



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# Shuttering Carpenter-System

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Shuttering Carpentry-System” in the “Construction” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>Shuttering Carpenter-System</b>		
<b>Qualification Pack Name &amp; Reference ID. ID</b>	CON/Q0304, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	30-12-2015
<b>Pre-requisites to Training</b>	Preferably 5th Standard		
<b>Training Outcomes</b>	<b>After completing this programme, participants will be able to:</b> <ul style="list-style-type: none"><li>• <b>Make wooden shutters used in shuttering carpentry:</b> - Use of hand and power tools for making wooden shutter boards.</li><li>• <b>Assemble and dismantle System formwork for RCC structures :-</b> Standard methods for carrying out shuttering of R.C.C structural elements</li><li>• <b>Carry out quality checks for shuttering works:</b> - Concepts of quality checking for shuttering works for various R.C.C structural elements</li><li>• <b>Work effectively in a team to deliver desired results at the workplace :-</b> Organised working procedure within a team at site</li><li>• <b>Plan and organize work to meet expected outcomes:</b> - Prioritizing activities and organising resources to meet desired outcome.</li><li>• <b>Work according to personal health, safety and environment protocol at construction site:</b> - Importance of Health &amp; Safety aspects &amp; measures to be followed while working.</li></ul>		

This course encompasses 6 out of 6 National Occupational Standards (NOS) of “Shuttering Carpenter-System” Qualification Pack issued by “Construction”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Introduction</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 00:00</p>	<ul style="list-style-type: none"> <li>• Role description/ functions of the job role</li> <li>• Expected personal attributes from the job role</li> <li>• Brief description about course content, mode of learning and duration of course</li> <li>• Future possible progression and career development provisions on completion of the course</li> </ul>	<p><u>Classroom Requirement</u></p> <ol style="list-style-type: none"> <li>1. Classroom of 30 students capacity</li> <li>2. Black/White board</li> <li>3. Projector/LED Monitor</li> <li>4. Computer</li> <li>5. Trade specific charts and other teaching aids</li> </ol>
2	<p><b>Make wooden shutters used in shuttering carpentry</b></p> <p><b>Theory Duration</b> (hh:mm) 12:00</p> <p><b>Practical Duration</b> (hh:mm) 76:00</p> <p><b>Corresponding NOS Code</b> CON/N0302</p>	<p><b>Theory: -</b></p> <ul style="list-style-type: none"> <li>• Use of hand tools such as hand saw, different types of chisel, jack hammer, nailing hammer, hand drill</li> <li>• Use of power tools such as circular saw, hand drill machine, table mounted saw, planing machine and power drilling machine</li> <li>• Importance of correct body postures</li> <li>• Handling and maintenance of tools</li> <li>• Types of timber, plywood</li> <li>• Standard size of timber and plywood for shutter making purpose</li> <li>• Seasoning of timber, common defects in timber and visual checks</li> <li>• Measurement and marking tools</li> <li>• Types of joints – Dovetail, Tenon &amp; Mortise, Lap joints, Half joints</li> <li>• Tolerance limit for wooden shutters</li> <li>• Repair of wooden shutters</li> <li>• Electrical safety for using of power tools</li> </ul> <p><b>Demonstration/ Practical :-</b></p> <ul style="list-style-type: none"> <li>• Demonstrate cutting of timber and plywood as per measurement and marking</li> <li>• Demonstrate use of hand saw, chisel, jack hammer, hand auger</li> <li>• Demonstrate use of power tools for cutting, sizing, planing and drilling of timber</li> </ul>	<p><u>Hand tools</u></p> <ol style="list-style-type: none"> <li>1. Claw Hammer</li> <li>2. Handsaw</li> <li>3. Tenon saw</li> <li>4. Iron Jack Planner</li> <li>5. Wooden Marking Gauge</li> <li>6. Wooden Mortise Gauge</li> <li>7. Spirit Level</li> <li>8. Tri-Square</li> <li>9. Auger</li> <li>10. Steel Measuring Tape</li> <li>11. Farmer Chisel</li> <li>12. Mortise Chisel</li> <li>13. Cutting Player</li> <li>14. Screw Driver 10"</li> <li>15. Marking Knife / Scribe</li> <li>16. Wooden Mallet</li> <li>17. Oil Stone (Rough / Smooth)</li> <li>18. Center Punch</li> <li>19. Bench Vice</li> <li>20. Hacksaw Frame with blade</li> <li>21. Triangle file - 6mm (Medium)</li> </ol>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Demonstrate making of Dovetail joints, tenon mortise joint, Lap joints</li> <li>• Demonstrate making of wooden shutter boards as per specified size</li> <li>• Demonstrate the fixtures and consumables required for shutter making.</li> </ul>	<p>22. Half Round File &amp; Rasp cut file</p> <p>23. Drill Bit</p> <p>24. Plumb Bob</p> <p>25. Ring Spanner</p> <p>26. Double End Spanner</p> <p>27. Screw Spanner 12" LM</p> <p>28. Carpenter Working Table</p> <p>29. Nail Bar</p> <p><u>Measuring Instruments</u></p> <p>30. Measuring tape</p> <p>31. Spirit level</p> <p>32. Plumb-bob</p> <p>33. Mason's line</p> <p>34. Water level tube</p> <p><u>Materials</u></p> <p>35. System formwork for Footing, column, wall, beam, slab</p> <p>36. Cup-lock scaffolding components (set)/Frame scaffold components</p> <p>37. 40 NB pipes</p> <p>38. Swivel coupler</p> <p>39. Fixed clamp</p> <p>40. Steel walkways</p> <p>41. Aluminium/ GI ladder</p> <p>42. Safety net</p> <p><u>Power tools</u></p> <p>43. Hand held timber Cutting machine (Circular saw, Zig-jack saw)</p> <p>44. Drilling machine</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			45. Table mounted circular saw 46. Planing machine  <u>PPEs &amp; safety equipment's</u> 47. Helmet 48. Safety shoes 49. Safety belt 50. Cotton hand gloves 51. Nose mask 52. Safety apron 53. Ear plugs 54. Goggles 55. Reflective jackets 56. Safety message boards
3	<b>Assemble and dismantle System formwork for RCC structures</b>  <b>Theory Duration</b> (hh:mm) 40:00  <b>Practical Duration</b> (hh:mm) 172:00  <b>Corresponding NOS Code</b> CON/N0303	<b>Theory:-</b> <ul style="list-style-type: none"> <li>• Introduction to schematic working drawing</li> <li>• Introduction to System formwork</li> <li>• Difference between conventional and system formwork</li> <li>• Advantage of system formwork over conventional formwork</li> <li>• Types of shuttering material and their standard size</li> <li>• Consumables used in shuttering work</li> <li>• Types of system formwork and their application</li> <li>• Standard size of formwork components and their unit weight</li> <li>• Different types of releasing agents (shuttering oil, cream emulsions, chemical release agents)</li> <li>• Standard procedure assembling and dismantling system formwork for R.C.C footing, column, wall, beam, slab</li> <li>• General tolerance for shuttering works</li> <li>• Standard procedure for dismantling system formwork for R.C.C footing, column, wall, slab, beam etc.</li> <li>• Stripping time for removing shuttering of various R.C.C structural elements</li> </ul>	<u>Hand tools</u> <ol style="list-style-type: none"> <li>1. Claw Hammer</li> <li>2. Handsaw</li> <li>3. Tenonsaw</li> <li>4. Iron Jack Planner</li> <li>5. Wooden Marking Gauge</li> <li>6. Woden Mortise Gauge</li> <li>7. Spirit Level</li> <li>8. Tri-Square</li> <li>9. Auger</li> <li>10. Steel Measuring Tape</li> <li>11. Farmer Chisel</li> <li>12. Mortise Chisel</li> <li>13. Cutting Player</li> <li>14. Screw Driver 10"</li> <li>15. Marking Knife / Scribe</li> <li>16. Wooden Mallet</li> <li>17. Oil Stone (Rough / Smooth)</li> <li>18. Center Punch</li> <li>19. Bench Vice</li> </ol>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Repairing of formwork and housekeeping</li> <li>• Use of lifting gears for shifting and fixing of formwork components</li> <li>• Standard procedure for stacking and storing of formwork component</li> </ul> <p><b><u>Demonstration/ Practical :-</u></b></p> <ul style="list-style-type: none"> <li>• Demonstrate reading of schematic working drawing for carrying out shuttering work</li> <li>• Practice how to determine shuttering material requirement</li> <li>• Demonstrate assembling and dismantling of system formwork for R.C.C footing, column, wall, beam and slab</li> <li>• Demonstrate staking of formwork components</li> <li>• Demonstrate checking procedure of erected formwork for line, level, alignment and plumb within limit.</li> </ul>	<ul style="list-style-type: none"> <li>20. Hacksaw Frame with blade</li> <li>21. Triangle file - 6mm (Medium)</li> <li>22. Half Round File &amp; Rasp cut file</li> <li>23. Drill Bit</li> <li>24. Plumb Bob</li> <li>25. Ring Spanner</li> <li>26. Double End Spanner</li> <li>27. Screw Spanner 12" LM</li> <li>28. Carpenter Working Table</li> <li>29. Nail Bar</li> </ul> <p><b><u>Measuring Instruments</u></b></p> <ul style="list-style-type: none"> <li>30. Measuring tape</li> <li>31. Spirit level</li> <li>32. Plumb-bob</li> <li>33. Mason's line</li> <li>34. Water level tube</li> </ul> <p><b><u>Materials</u></b></p> <ul style="list-style-type: none"> <li>35. System formwork for Footing, column, wall, beam, slab</li> <li>36. Cup-lock scaffolding components (set)/Frame scaffold components</li> <li>37. 40 NB pipes</li> <li>38. Swivel coupler</li> <li>39. Fixed clamp</li> <li>40. Steel walkways</li> <li>41. Aluminium/ GI ladder</li> <li>42. Safety net</li> </ul> <p><b><u>Power tools</u></b></p> <ul style="list-style-type: none"> <li>43. Hand held timber Cutting machine</li> </ul>



Sr. No.	Module	Key Learning Outcomes	Equipment Required
			(Circular saw, Zig-jack saw) 44. Drilling machine 45. Table mounted circular saw 46. Planing machine  <u>PPEs &amp; safety equipment's</u> 47. Helmet 48. Safety shoes 49. Safety belt 50. Cotton hand gloves 51. Nose mask 52. Safety apron 53. Ear plugs 54. Goggles 55. Reflective jackets 56. Safety message boards
4	<b>Carry out quality check for shuttering works</b>  <b>Theory Duration</b> (hh:mm) 04:00  <b>Practical Duration</b> (hh:mm) 20:00  <b>Corresponding NOS Code</b> CON/N0304	<b>Theory:</b> <ul style="list-style-type: none"> <li>Importance of quality checks in shuttering works</li> <li>Maximum tolerance limits for key quality checks for shuttering works</li> <li>Rectification of shuttering works</li> <li>Basic fundamentals of reinforcement and concreting works</li> <li>Process for carrying out quality checks for shuttering works</li> </ul> <b>Demonstration/ Practical :-</b> <ul style="list-style-type: none"> <li>Demonstrate checking of column shutters for line, plumb, alignment, support and dimensional accuracy</li> <li>Demonstrate checking of wall shutters for line, level, alignment, plumb, support and dimensional accuracy</li> <li>Demonstrate checking of footing shutters for line, position, alignment, support and dimensional accuracy</li> <li>Demonstrate checking of beam shutters line, level, alignment, plumb, support and dimensional accuracy</li> </ul>	<u>Hand tools</u> <ol style="list-style-type: none"> <li>Claw Hammer</li> <li>Handsaw</li> <li>Tenonsaw</li> <li>Iron Jack Planner</li> <li>Wooden Marking Gauge</li> <li>Woden Mortise Gauge</li> <li>Spirit Level</li> <li>Tri-Square</li> <li>Auger</li> <li>Steel Measuring Tape</li> <li>Farmer Chisel</li> <li>Farmer Chisel</li> <li>Mortise Chisel</li> <li>Cutting Player</li> <li>Screw Driver 10"</li> <li>Marking Knife / Scribe</li> <li>Wooden Mallet</li> <li>Oil Stone (Rough / Smooth)</li> </ol>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Demonstrate checking of slab shutters for bottom support, level, dimensional accuracy, slab depth</li> </ul>	19. Center Punch 20. Bench Vice 21. Hacksaw Frame with blade 22. Triangle file - 6mm (Medium) 23. Half Round File & Rasp cut file 24. Drill Bit 25. Plumb Bob 26. Ring Spanner 27. Double End Spanner 28. Screw Spanner 12" LM 29. Carpenter Working Table 30. Nail Bar <u>Measuring Instruments</u> 31. Measuring tape 32. Spirit level 33. Plumb-bob 34. Mason's line 35. Water level tube  <u>Materials</u> 36. System formwork for Footing, column, wall, beam, slab 37. Cup-lock scaffolding components (set)/Frame scaffold components 38. 40 NB pipes 39. Swivel coupler 40. Fixed clamp 41. Steel walkways 42. Aluminium/ GI ladder 43. Safety net  <u>Power tools</u>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			44. Hand held timber Cutting machine (Circular saw, Zig-jack saw) 45. Drilling machine 46. Table mounted circular saw 47. Planing machine  <u>PPEs &amp; safety equipment's</u> 48. Helmet 49. Safety shoes 50. Safety belt 51. Cotton hand gloves 52. Nose mask 53. Safety apron 54. Ear plugs 55. Goggles 56. Reflective jackets 57. Safety message boards
5	<p><b>Work effectively in a team to deliver desired results at the workplace</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> CON/N8001</p>	<p><b>Theory: -</b></p> <ul style="list-style-type: none"> <li>Method of oral and written communication skills with co-workers, trade seniors while handling and carrying out visual checks on materials, tools and tackles, equipment</li> <li>How to interpret scope of shuttering work, material/ tools handling by adhering to instructions or consulting with seniors</li> <li>Method of providing instruction to subordinates or reporting to seniors clearly and promptly</li> <li>Seek necessary support and complete assigned tasks within stipulated time duration</li> <li>Keep good relation and maintain well behavior with co-workers</li> </ul> <p><b>Demonstration/ practical: -</b> The skills will be developed and practiced while carrying out following trade related</p>	1. Classroom having seating requirement for 30 people. 2. Toilet/Urinals (Separate for gents and Ladies) 3. Projector Blackboard

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>activities in a predictable and familiar working condition</p> <ul style="list-style-type: none"> <li>• Selection of materials, tools or devices for defined purpose under</li> <li>• Handling formwork materials, tools and equipment</li> <li>• Carrying out cutting, sizing and planing of timber</li> <li>• Carrying out monitoring of shutter making activity</li> <li>• Ensuring erection and dismantling of formwork as per formwork drawings and specifications</li> <li>• Inspecting quality of shuttering works with the help of team members for line, level, alignment, support, rigidity etc.</li> </ul>	
6	<p><b>Plan and organize work to meet expected outcomes</b></p> <p><b>Theory Duration</b> (hh:mm) 04:00</p> <p><b>Practical Duration</b> (hh:mm) 16:00</p> <p><b>Corresponding NOS Code</b> CON/N8002</p>	<p><b>Theory:-</b></p> <ul style="list-style-type: none"> <li>• Basic concept of productivity, sequence of working and implementation of safety and organizational norms while working</li> <li>• Optimization of resources</li> <li>• To plan shuttering work within defined scope of work</li> <li>• Upkeep, storing and stacking methods of tools, materials used for domain specific works</li> <li>• Requisition of resources, reporting for requirement of resources orally and in written to concerned authority</li> <li>• Importance of housekeeping</li> </ul> <p><b>Demonstration/ Practical :-</b></p> <p>The skills will be developed and practiced while carrying out following trade related activities in a predictable and familiar working condition</p> <ul style="list-style-type: none"> <li>• Selection of materials, tools or devices for defined purpose in an optimum manner</li> <li>• Handling material, tools and equipment relevant to reinforcements works</li> <li>• Prioritize all works/ activities</li> <li>• Planning cutting, sizing and planing of timber activities</li> </ul>	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>Carrying out erection and dismantling of formwork as per formwork drawings</li> <li>Optimum use of resources while performing task</li> <li>Adherence to stipulated timelines for completion of shuttering work</li> </ul>	
7	<p><b>Work according to personal health, safety and environment protocol at construction site</b></p> <p><b>Theory Duration</b> (hh:mm) 08:00</p> <p><b>Practical Duration</b> (hh:mm) 16:00</p> <p><b>Corresponding NOS Code</b> <b>CON/N9001</b></p>	<p><b>Theory:-</b></p> <ul style="list-style-type: none"> <li>Types of hazards involved in construction sites</li> <li>Types of hazards involved in reinforcement works</li> <li>Emergency safety control measures and actions to be taken under emergency situation</li> <li>Identification of unsafe act and unsafe condition</li> <li>Concept of :-               <ol style="list-style-type: none"> <li>1. First Aid process</li> <li>2. Use of fire extinguisher</li> <li>3. Classification of fires and fire extinguisher</li> <li>4. Safety drills</li> <li>5. Types and use of PPEs required for reinforcement works</li> </ol> </li> <li>Safety protocols and practices</li> <li>Reporting procedure to the concerned authority in emergency situations</li> <li>Standard procedure of handling, storing and stacking material</li> <li>What is safe disposal of waste, type of waste and their disposal</li> <li>Basic ergonomic principles as per applicability</li> </ul> <p><b>Demonstration/ Practical :-</b> The skills will be developed and practiced while carrying out following trade related activities in a predictable and familiar working condition.</p> <ul style="list-style-type: none"> <li>Selection of PPEs and use them appropriately as per working need of reinforcement works, handling, storing, stacking and shifting of reinforcement material, tools and equipment</li> </ul>	<p><b>PPEs</b></p> <ol style="list-style-type: none"> <li>1. Safety Helmet</li> <li>2. Safety goggles</li> <li>3. Safety shoes</li> <li>4. Safety belt</li> <li>5. Cotton gloves</li> <li>6. Ear plugs</li> <li>7. Reflective jackets</li> <li>8. Dust mask</li> <li>9. Fire Prevention kit</li> </ol>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Selection of PPEs and use them appropriately as per working need of cutting, sizing and planning of timber and assembling and dismantling of formwork</li> <li>• Identification of locations, situations/ circumstances, malpractices which can be hazardous for general or shuttering works</li> <li>• Selection of fire extinguisher based on classification of fire, standard practice of storing &amp; stacking firefighting equipment/ materials at work locations</li> <li>• Disposal of waste materials as per their nature and effects on weather</li> </ul>	
	<p><b>Total Duration</b></p> <p><b>Theory Duration 80:00</b></p> <p><b>Practical Duration 320:00</b></p>	<p><b>Unique Equipment Required:</b></p> <p><u>Classroom Requirement</u> Classroom of 30 students capacity, Black/White board, Projector/LED Monitor, Computer, Trade specific charts and other teaching accessories</p> <p><u>Hand Tools</u> Claw Hammer, Handsaw, Tenon saw, Iron Jack Planner , Wooden Marking Gauge Wooden Mortise Gauge, Spirit Level , Tri-Square, Auger , Steel Measuring Tape, Farmer Chisel , Farmer Chisel , Mortise Chisel , Cutting Player, Screw Driver 10", Marking Knife / Scribe , Wooden Mallet, Oil Stone (Rough / Smooth), Centre Punch , Bench Vice, Hacksaw Frame with blade, Triangle file - 6mm (Medium) , Half Round File &amp; Rasp cut file, Drill Bit, Plumb Bob, Ring Spanner , Double End Spanner, Screw Spanner 12" LM, Carpenter Working Table, Nail Bar</p> <p><u>Measuring Instruments</u> Measuring tape, Spirit level, Water level tube, Plumb-bob, Mason's line</p> <p><u>General requirement</u> Lifting appliance (Sling, Shackle, Belts)</p> <p><u>Materials</u> System formwork components and fixtures (for Footing, column, wall, beam, slab )Cup-lock scaffolding components (set)/Frame scaffold components, Staircase tower components with fixtures, Castor wheels , 40 NB pipes, Swivel coupler, Fixed clamp, Steel walkways, Aluminium/ GI ladder, Safety net</p> <p><u>PPEs</u></p>	



Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<p>Safety Helmet, Safety goggles, Safety shoes, Safety belt, Cotton gloves, Ear plugs , Reflective jackets, Dust mask, Fire Prevention kit</p> <p><b>Infrastructure</b></p> <p>Class room for theory and assessment with 30 study chairs , Workshop/Mock-up yard for practical training and assessment, Toilet/Urinals (Separate for gents and Ladies), 3 phase power supply points , Single phase power supply points, Fire extinguishers (mechanical foam, DCP, CO2 and sand buckets with stand), First aid kit, Tool box with lock and key</p>	

Grand Total Course Duration: **400 Hours, 0 Minutes**

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



## Trainer Prerequisites for Job role: “Shuttering Carpenter- System” mapped to Qualification Pack: “CON/Q0304, V1.0”

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q0304”.
2	<b>Personal Attributes</b>	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	<b>Minimum Educational Qualifications</b>	ITI/12 <sup>th</sup> standard pass
4a	<b>Domain Certification</b>	Trainer/Assessor-70% in each NOS & 80% overall, Lead trainer/Lead Assessors- 70% in each NOS and overall 90%
4b	<b>Platform Certification</b>	Trainer/Assessor-80% in each NOS and Lead trainer/Lead Assessors-90% in each NOS
5	<b>Experience</b>	i. Technical Degree holder with minimum five years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder seven years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12 <sup>th</sup> pass minimum ten years of field experience and preferably two years of teaching experience.





## Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Shuttering Carpenter-System</b>
<b>Qualification Pack</b>	<b>CON/Q0304, v1.0</b>
<b>Sector Skill Council</b>	<b>Construction</b>

<b>Sr. No.</b>	<b>Guidelines for Assessment</b>
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3	Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on assessment criteria.
5	The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6	The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome
7	The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8	After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
9	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack within the specified timeframe set by SSC.
10	Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

		Marks Allocation			
		Total Mark	Out Of	Theory	Skills Practical
CON/N0302: Make shutters used in shuttering carpentry	PC1. select and use regular hand tools such as hand saw, chisel, jack hammer, nailing hammer, hand drill and other tools efficiently	<b>100</b>	10	2	8
	PC2. select and use power tools such as circular saw, hand drill machine, table mounted saw, planing machine and power drilling machine for cutting, sizing and planing of timber and plywood efficiently		10	2	8
	PC3. maintain correct body posture while operating the machine		10	2	8
	PC4. maintain, handle, store and upkeep all relevant tools and their basic maintenance		10	2	8
	PC5. carry out visual check to ensure that timber, plywood are as per quality and requirements for making shutters		10	2	8
	PC6. check that all fixtures, consumables and materials are available for shutter making		10	2	8
	PC7. make use of measurement and marking tools for marking on plywood and timber		5	1	4
	PC8. measure and mark form sheathing and stiffeners according to instructions and sketches		5	1	4
	PC9. cut form sheathing material (plywood) and stiffeners (timber) within the tolerance limit and as per instructions / specification		5	1	4
	PC10. make wooden shutter panels using different types of joints such as dovetail, tennon & mortise, lap joints as per instructions and specifications		5	1	4
	PC11. smooth corners and edges of panels using appropriate tools		5	1	4
	PC12. carry out nailing work as per standard practice ensuring rigidity of joints		5	1	4
	PC13. check and ensure that shutter board dimension is as per sketch		5	1	4
	PC14. repair already prepared shutters by nailing and strengthening		5	1	4
	<b>Total</b>			<b>100</b>	<b>20</b>
CON/N0303: Assemble and dismantle system formwork for RCC structures	PC1. clean the shutter panels before using for shuttering work	<b>100</b>	5	1	4
	PC2. check for supporting base for system formwork components		5	1	4
	PC3. check and ensure all tools, material, components are available as per requirements		5	1	4
	PC4. check that fixing and fasteners are as per system used and as per the requirements		5	1	4
	PC5. apply release agents to sheathing material as per specifications and instructions		5	1	4
	PC6. position and set out formwork manually or by mechanical means as per instructions and requirement		5	1	4
	PC7. position and provide necessary support using props or other appropriate components based on system used		5	1	4

	PC8. check for block-outs and cast-in services to specified locations	5	1	4
	PC9. plug all openings and gaps using foam sheet and adhesive tape or other appropriate materials	5	1	4
	PC10. ensure water tightness of form by providing form sheet or necessary packing material	5	1	4
	PC11. position and fix props properly and check for plumb, position and spacing is as specified or instructed	5	1	4
	PC12. provide horizontal or vertical construction joints in case of structural element such as beam , column, slab as per standard practices	5	1	4
	PC13. ensure tightness of tie rods, supports, and bracings	5	1	4
	PC14. provide support in placing and fixing kicker for column, walls and check its position with respect to line , alignment, and necessary grid dimension	5	1	4
	PC15. check erected formwork for line, level, alignment and plumb within tolerance limit	5	1	4
	PC16. check the dimensional accuracy and right angle and take necessary corrective measures if required	5	1	4
	PC17. follow dismantling procedure as per standard practice and system used	10	2	8
	PC18. remove bracing and all other support sequentially and safely as instructed	10	2	8
	PC19. remove sheathing material sequentially using proper tools and tackles to avoid damage to structure or sheathing materials	5	1	4
	PC20. dismantle formwork shutters manually or by mechanical means as per requirement	5	1	4
	PC21. ensure that all the small components are staked properly for further use	5	1	4
	PC22. repair formwork material if required and ensure cleaning and proper stacking after dismantling	5	1	4
	<b>Total</b>	<b>100</b>	<b>20</b>	<b>80</b>
CON/N0304: Carry out quality check for shuttering works	PC1. check fixed shutters with respect to survey layouts	10	2	8
	PC2. check for application of release agent	5	1	4
	PC3. Check cover of reinforcement steel is as specified	10	2	8
	PC4. check joints of plywood and timber and procedure used for nailing	5	1	4
	PC5. check diagonal dimensions for its accuracy, if twist observe take corrective action	5	1	4
	PC6. take rectification measures of formwork boards / plates after removal	10	2	8
	PC7. check for water tightness of the whole shuttering / formwork system	10	2	8
	PC8. check plumb to ensure verticality is within tolerance limit	5	1	4
	PC9. check dimensions according to sketches / instructions to ensure that they are within tolerance limit	5	1	4
	PC10. check props for verticality, position and spacing in case of load bearing support	10	2	8
	<b>100</b>			



	PC11. check lines and levels according to sketches / instructions to ensure that they are within tolerance limit		5	1	4
	PC12. check support for shuttering and formwork to ensure stability		10	2	8
	PC13. inform superior for checking and assist while checking		10	2	8
	<b>Total</b>		<b>100</b>	<b>20</b>	<b>80</b>
CON/N8001: Work effectively in a team to deliver desired results at the workplace	PC1. pass on work related information/ requirement clearly to the team members	<b>100</b>	10	2	8
	PC2. inform co-workers and superiors about any kind of deviations from work		5	1	4
	PC3. address the problems effectively and report if required to immediate supervisor appropriately		5	1	4
	PC4. receive instructions clearly from superiors and respond effectively on same		5	1	4
	PC5. communicate to team members/subordinates for appropriate work technique and method		5	1	4
	PC6. seek clarification and advice as per requirement and applicability		10	2	8
	PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		30	6	24
	PC8. work together with co-workers in a synchronized manner		30	6	24
	<b>Total</b>		<b>100</b>	<b>20</b>	<b>80</b>
CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	<b>100</b>	10	2	8
	PC2. plan activities as per schedule and sequence		10	2	8
	PC3. provide guidance to the subordinates to obtain desired outcome		10	2	8
	PC4. plan housekeeping activities prior to and post completion of work		10	2	8
	PC5. list and arrange required resources prior to commencement of work		10	2	8
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		10	2	8
	PC7. complete the work with allocated resources		10	2	8
	PC8. engage allocated manpower in an appropriate manner		10	2	8
	PC9. use resources in an optimum manner to avoid any unnecessary wastage		5	1	4
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		5	1	4
	PC11. organize work output, materials used, tools and tackles deployed,		5	1	4
	PC12. processes adopted to be in line with the specified standards and instructions		5	1	4
	<b>Total</b>		<b>100</b>	<b>20</b>	<b>80</b>



CON/N9001: Work according to personal health, safety and environment protocol at construction site	PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authorities	<b>100</b>	5	1	4
	PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities		5	1	4
	PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable		10	2	8
	PC4. participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site		5	1	4
	PC5. identify near miss , unsafe condition and unsafe act		5	1	4
	PC6. use appropriate Personal Protective Equipment (PPE) as per work requirements including: • Head Protection (Helmets) • Ear protection • Fall Protection • Foot Protection • Face and Eye Protection • Hand and Body Protection • Respiratory Protection (if required)		10	2	8
	PC7. handle all required tools, tackles , materials & equipment safely		5	1	4
	PC8. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines		5	1	4
	PC9. install and apply properly all safety equipment as instructed		15	3	12
	PC10. follow safety protocol and practices as laid down by site EHS department		15	3	12
	PC11. collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes		10	2	8
	PC12. apply ergonomic principles wherever required		10	2	8
	<b>Total</b>	<b>100</b>	<b>20</b>	<b>80</b>	