Model Curriculum

Rigger Precast Erection

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Rigging
REF ID: CON/Q0703, Version 2.0
NSQF LEVEL: 4
Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the
CONSTRUCTION SKILL DEVELOPMENT COUNCIL OF INDIA
for the
MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/Qualification Pack: *Rigger Precast Erection* OP No. *CON/Q 0703, V.2.0 NSOF Level 4*

Date of Issuance: August 30th, 2019
Valid up to: July 29th, 2023*

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

Authorized Signatory

(Date of Issuance)

Rigger Precast Erection
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# Rigger Precast Erection

**CURRICULUM / SYLLABUS**

This program is aimed at training candidates for the job of a “Rigger Precast Erection”, in the “Construction” Sector/Industry and aims at building the following key competencies amongst the learner

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Rigger Precast Erection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualification Pack Name &amp; Reference ID</td>
<td>CON/Q0703 Version 2.0</td>
</tr>
<tr>
<td>Version No.</td>
<td>2.0</td>
</tr>
<tr>
<td>Pre-requisites to Training</td>
<td>Nil</td>
</tr>
<tr>
<td>Training Outcomes</td>
<td>After completing this programme, participants will be able to:</td>
</tr>
<tr>
<td></td>
<td>• Perform shifting of precast units as per instruction</td>
</tr>
<tr>
<td></td>
<td>• Demonstrate process of providing support in heavy lifting of precast units</td>
</tr>
<tr>
<td></td>
<td>• Demonstrate how to unload, position and align the RCC precast components</td>
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<tr>
<td></td>
<td>• Demonstrate the grouting work as per instruction</td>
</tr>
<tr>
<td></td>
<td>• Perform the application of caulking agents in RCC Precast components</td>
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<tr>
<td></td>
<td>• Interact and communicate effectively with co-workers, superiors and subordinates within the team and across interfacing teams to ensure effective execution of assigned task.</td>
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<tr>
<td></td>
<td>• Prioritise activities to plan and organise work as per expected outcomes</td>
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<td>• Follow safety norms as defined by organization, adopt healthy and safe work practices</td>
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</tbody>
</table>
This course encompasses 6 out of 6 National Occupational Standards (NOS) of “Rigger Precast Erection” Qualification Pack issued by “Construction Skill Development Council of India”.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Module</th>
<th>Key Learning Outcomes</th>
<th>Equipment Required</th>
</tr>
</thead>
</table>
| 1       | Introduction to rigging occupation | • Explain roles and responsibilities of the job role-Rigger Precast Erection  
• Explain expected personal attributes required in rigger-Precast Erection  
• Recall the basic terms used in rigger precast erection  
• Discuss future career progression for Rigger-prefcast Erection | |
|         | Theory Duration (hh:mm) | 08:00 | Practical Duration (hh:mm) | 00:00 |
| 2       | Perform shifting of precast units as per instruction | • Explain the basic principles of measurement, geometry and arithmetic calculation relevant to rigging work  
• Describe the method of conversion of units of linear measurements  
• Select rigging tools/ gears used in shifting of heavy precast units  
• Demonstrate how to anchor and hook up the precast structure with lifting equipment using suitable rigging gears  
• Demonstrate how to tie down and stabilize the precast unit to the transporting vehicle using chains, binders, belts etc  
• Demonstrate unloading of the precast unit from the transporting vehicle to the specified location  
• Perform visual checks on the precast units for chipped edges, cracks, blemishes, stains and edge conditions | • Spud Wrenches  
• Open-End Wrenches.  
• Crescent Wrenches.  
• Hammer  
• Nibbler  
• pliers  
• Impact Wrench  
• Drilling machine with bits  
• Electric screw gun  
• Electric hexa s  
• Measuring tape  
• Plumb Bob  
• Spirit level  
• Chalks line  
• Try square  
• Water lev  
• Tower crane  
• Mobile crane  
• Forklift  
• Scissor lift  
• Hydraulic jacks  
• Electric Wire Rope Hoist  
• Electrical winch  
• Electrical  
• Slings  
• Wire ropes  
• Shackles  
• Spreader board  
• Chain  
• Link  
• Eye hook  
• Eye bolts  
• Bull dog grips  
• Clamp  
• socket |
<table>
<thead>
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<th>Equipment Required</th>
</tr>
</thead>
</table>
| 3      | Demonstrate how to provide support in heavy lifting of precast units | • State nature of base (level and compaction) required for equipment during lifting  
        | Theory Duration (hh:mm) 8:00 | • Explain working mechanism of the lifting equipment like cranes, winches, etc.  
        | Practical Duration 34:00    | • Perform checks on precast components to confirm the condition of embedded parts  
        | Corresponding NOS Code CON/N0709 | • Report to seniors in case of any discrepancy in embedded parts  
        |                                  | • Recall the gestures/ signals used during load lifting work  
        |                                  | • Demonstrate the procedure to inspect lifting gears, tools and tackles for their proper workability  
        |                                  | • Perform preparation of the base for the lifting equipment  
        |                                  | • Demonstrate how to attach slings, lifting belts, shackles or hooks safely to the load  
        |                                  | • Demonstrate how to attach tag line to the load at the required location  
        |                                  | • Demonstrate process of controlling the position of suspended loads using tag line  
| 4      | Unload, position and align RCC precast components | • Identify rigging tools and tackles required for precast erection  
        | Theory Duration (hh:mm) 32:00 | • Explain the procedure of requisitions of material, tools and equipment  
        | Practical Duration (hh:mm) 84:00 | • Explain method of checking alignment of the erected structures  
        | Corresponding NOS Code CON/N0710 | • Recall the signals used to guide equipment’s operator to lift and locate the precast unit to its final position  
        |                                  | • Demonstrate unloading of precast units at specific location  
        |                                  | • Demonstrate how to stabilize the units in its position using temporary bracing supports and connections such as pony clamp, such as pony clamps, tilt up jacks, turn buckles, guy lines  
        |                                  | • Demonstrate the checks for ensuring vertical and horizontal alignment of the precast unit  
        |                                  | • Spud Wrenches  
        |                                  | • Open-End Wrenches.  
        |                                  | • Crescent Wrenches.  
        |                                  | • Hammer  
        |                                  | • Nibbler  
        |                                  | • Pliers  
        |                                  | • Drilling machine with bits  
        |                                  | • Electric screw gun  
        |                                  | • Electric hexa saw  
        |                                  | • Measuring tape  
        |                                  | • Plumb Bob  
        |                                  | • Spirit level  
        |                                  | • Chalks line  
        |                                  | • Try square  
        |                                  | • Water level  
        |                                  | • Tower crane  
        |                                  | • Mobile crane  
        |                                  | • Forklift  
        |                                  | • Scissor lift  
        |                                  | • Hydraulic jacks  
        |                                  | • Electric Wire Rope Hoist  
        |                                  | • Electrical winch  
        |                                  | • Electrical chain hoist  
        |                                  | • Slings  
        |                                  | • Wire ropes  
        |                                  | • Shackles  

Rigger Precast Erection
<table>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>Demonstrate grouting work as per instruction</td>
<td>- Explain the ideal surface condition of the surface/structure required for grouting work&lt;br&gt;- Identify the tools and tackles used for cleaning and grouting work&lt;br&gt;- Explain the method to prevent flowable grouting agents from leakage&lt;br&gt;- Explain standard practices relevant to application of grouting agent&lt;br&gt;- Demonstrate the process of cleaning of surfaces prior to grouting work as per prescribed tools and materials&lt;br&gt;- Prepare concrete surfaces by applying purging, priming and bonding agents&lt;br&gt;- Install shutters, sealant materials around joints to carry out grouting work using flowable grout&lt;br&gt;- Demonstrate application of grout as per requirement&lt;br&gt;- Demonstrate process of cleaning and storing of tools relevant to grouting work</td>
<td>- Scrappers&lt;br&gt;- Grouting gun/ pump&lt;br&gt;- Wire brushes&lt;br&gt;- Caulking gun&lt;br&gt;- Caulking iron&lt;br&gt;- Caulking mallet&lt;br&gt;- Measuring tape&lt;br&gt;- Plumb Bob&lt;br&gt;- Spirit level&lt;br&gt;- Chalks line&lt;br&gt;- Try square&lt;br&gt;- Water level</td>
</tr>
<tr>
<td></td>
<td>Theory Duration (hh:mm) 16:00</td>
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<td></td>
<td>Practical Duration (hh:mm) 32:00</td>
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<td></td>
<td>Corresponding NOS Code CON/N0711</td>
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<td>6</td>
<td>Perform the application of caulking agents in RCC Precast components</td>
<td>- Explain how to apply primer on RCC surface to be caulked using proper hand tools&lt;br&gt;- Explain the guidelines about safety precautions to be taken while carrying out caulking activity&lt;br&gt;- Identify mix proportion of the caulking agents in order to prepare approved mix&lt;br&gt;- Describe method of filling of joints of precast units efficiently&lt;br&gt;- Select cleaning agents used for material and tools used in caulking operations&lt;br&gt;- Select hand tools used in caulking works&lt;br&gt;- Demonstrate the process of cleaning of joints to be caulked&lt;br&gt;- Demonstrate the application of primer on concrete surface to be caulked.&lt;br&gt;- Demonstrate filling of precast joints using appropriate filler materials&lt;br&gt;- Demonstrate the procedure of mixing caulking and colouring as per approved sample&lt;br&gt;- Demonstrate process of making concave caulking shape using tool such as merging trowels, putty knives or wooden sticks etc.</td>
<td>- Scrappers&lt;br&gt;- Wire brushes&lt;br&gt;- Caulking gun&lt;br&gt;- Caulking iron&lt;br&gt;- Caulking mallet&lt;br&gt;- Measuring tape&lt;br&gt;- Plumb Bob&lt;br&gt;- Spirit level&lt;br&gt;- Chalks line&lt;br&gt;- Try square&lt;br&gt;- Water level</td>
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<tr>
<td></td>
<td>Theory Duration (hh:mm) 16:00</td>
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<td></td>
<td>Practical Duration (hh:mm) 50:00</td>
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<td></td>
<td>Corresponding NOS Code CON/N0711</td>
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<tr>
<td>Sr. No.</td>
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<td>Key Learning Outcomes</td>
<td>Equipment Required</td>
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</table>
| 7      | Work effectively in a team to deliver desired results at the workplace | • Explain different modes of communication and its appropriate usage  
• Explain importance of team work and its effects relevant to rigger precast erection work  
• Explain effects and benefits of timely actions relevant to rigger precast erection work  
• Demonstrate effective communication skills  
• While interacting with co-workers, trade seniors and others during the assigned task.  
• Demonstrate effective reporting to seniors as per applicable organisational norms.  
• Demonstrate process of handing over the material, tools tackles, equipment and work fronts to interfacing teams | Scrappers  
Wire brushes  
Caulking gun  
Caulking iron  
Caulking mallet  
Measuring tape  
Plumb Bob  
Spirit level  
Chalks line  
Try square  
Water level |
|        | Theory Duration (hh:mm)                                               | 8:00                                                                                                                                                                                                                                                                                                                                                   |                                  |
|        | Practical Duration (hh:mm)                                            | 16:00                                                                                                                                                                                                                                                                                      |                                  |
|        | Corresponding NOS Code CON/N8001                                      |                                                                                                                                                                                                                                                                                           |                                  |
| 8      | Plan and organize work to meet expected outcomes                       | • Explain how to plan rigger precast erection activities within defined scope and duration  
• Explain basic concept of productivity and sequence of working  
• Explain process of requisition of resources and oral and written reporting for requirement of resources.  
• Demonstrate oral/ written reporting procedure to superiors.  
• Demonstrate how to handle and organize rigger precast erection tools, material, fixtures and devices.  
• Demonstrate how to prioritize all works/ activities  
• Demonstrate with example for optimum utilization of man and material resources in precast rigging work. |                                  |
|        | Theory Duration (hh:mm)                                               | 4:00                                                                                                                                                                                                                                                                                    |                                  |
|        | Practical Duration (on job training) (hh:mm)                          | 12:00                                                                                                                                                                                                                      |                                  |
|        | Corresponding NOS Code CON/N8002                                      |                                                                                                                                                                                                                             |                                  |
| 9      | Work according to personal health, safety and environment protocol at construction site | • Explain the types of hazards at the construction sites  
• Identify the hazards specific to the rigger precast erection works  
• Explain 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 worker participation in safety/mock drills  
• Explain the reporting procedure adopted in case of emergency situations  
• Describe the standard procedure for handling, storing and stacking of material, tools, equipment and accessories  
• Explain different types of wastes produced at a construction site including their disposal method  
• Explain vertigo test and other medical tests conducted to obtain permit of working at construction sites  
• Demonstrate vertigo test  
• Explain the types of ergonomic principles | Safety Helmet  
Safety goggles  
Safety shoes  
Safety belt  
Cotton gloves  
Ear plugs  
Reflective jackets  
Dust mask  
Fire Prevention kit  
Barricade tape  
Safety Tags |
<p>|        | Theory Duration (hh:mm)                                               | 12:00                                                                                                                                                                                                                      |                                  |
|        | Practical Duration (On job training) (hh:mm)                          | 28:00                                                                                                                                                                                                                      |                                  |
|        | Corresponding NOS Code CON/N9001                                      |                                                                                                                                                                                                                             |                                  |</p>
<table>
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<tr>
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<th>Equipment Required</th>
</tr>
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<td></td>
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<td>adopted while carrying out specific task at the construction</td>
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<tr>
<td></td>
<td></td>
<td>• Explain the benefits of basic ergonomic principles used at construction sites.</td>
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<td></td>
<td>• Explain the importance of housekeeping</td>
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<tr>
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<td></td>
<td>• Demonstrate the use of all Personal Protective Equipment (PPE) like helmet, safety shoe, safety belt, safe jackets and other safety equipment relevant to rigger precast erection works</td>
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<tr>
<td></td>
<td></td>
<td>• Demonstrate the operation of fire extinguisher.</td>
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<td></td>
<td>• Demonstrate different methods involved in providing first aid to the affected person</td>
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<td></td>
<td></td>
<td>• Demonstrate housekeeping practice followed after rigger precast erection works.</td>
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</tbody>
</table>

**Total Duration**: 400:00 hours  
**Theory Duration**: 120:00 hours  
**Practical Duration**: 280:00 hours

**Unique Equipment Required:**
- Hand Tools
  - Spud Wrenches, Open-End Wrenches, Crescent Wrenches, Sledge Hammer, Nibbler, pliers, tool kit
- Power tools
  - Welding tools and accessories, gas cutting tools and accessories
  - Drill machine with bits, electric screw gun, electric hexa saw
- Measuring Instruments
  - Measurement Tape, Chalk line/masons’ line, Water level, Spirit level, Plumb bob, try square
- Consumables
  - Paint, nail, welding rod, acetylene and oxygen, screw, chalk powder
- Equipment and machinery required
  - Mobile crane, tower crane, electric hoist, scissor lift, forklift, hydraulic jack, derrick, Electrical winch, Electrical chain hoist
- Lifting accessories
  - Slings, Wire ropes, Shackles, Spreader board, Chain, Link, Eye hook, Eye bolts, Bull dog grips, Clamp, socket
- Safety instruments
  - Safety Helmet, Safety goggles, Safety shoes, Safety belt, Cotton gloves, Ear plugs, Reflective jackets, Dust mask, Fire Prevention kit, Barricade tape, Safety Tags
- Classroom Aids and other requirements
  - Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board registers and other teaching aids

**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: “Rigger Precast Erection” mapped to Qualification Pack: “CON/Q0703, Version 2.0”

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Area</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description</td>
<td>To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q0703 Version 2.0”.</td>
</tr>
<tr>
<td>2</td>
<td>Personal Attributes</td>
<td>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</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Educational Qualifications</td>
<td>ITI/12th standard pass</td>
</tr>
<tr>
<td>4a</td>
<td>Domain Certification</td>
<td>Certified for the job role “Rigger Precast Erection” mapped to QP: “CON/Q0703 Version 2.0” Minimum accepted score is 80%</td>
</tr>
<tr>
<td>4b</td>
<td>Platform Certification</td>
<td>Certified for the job role “Trainer” mapped to QP: “MEP/Q2601” Minimum accepted score is 80%</td>
</tr>
<tr>
<td>5</td>
<td>Experience</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Note:** For the Assessment Criteria please refer to the QP PDF