**Introduction**

Qualifications Pack – Chargehand – Precast Erection

**SECTOR:** CONSTRUCTION

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

**OCCUPATION:** RIGGING

**REFERENCE ID:** CON/Q0706

**ALIGNED TO:** NCO-2004/7215.10

This job role executes heavy lifting and erection of RCC Precast units and supervises grouting and caulking activities in precast segments.

**Brief Job Description:** The job role is responsible for lifting heavy RCC Precast units using cranes or suitable equipment and erects them in appropriate locations as per drawing. Individuals in this job role also supervise grouting and caulking works as applicable to the precast erection operations at construction sites.

**Personal Attributes:** The job holder is expected to be fit by physical and mental aspects and should have good analytical and problem solving skills. Individual in this job role should be able to guide a team of riggers through effective communication in order to get the assigned task completed as per stipulated tolerance limit and applicable statutory requirements. The job holder should preferably be free from vertigo problem, cardiovascular diseases as the nature of work involves handling heavy loads and working at heights.
### Qualifications Pack Code

<table>
<thead>
<tr>
<th>Qualifications Pack Code</th>
<th>CON/Q0706</th>
</tr>
</thead>
</table>

### Job Role

<table>
<thead>
<tr>
<th>Job Role</th>
<th>Chargehand – Precast Erection</th>
</tr>
</thead>
</table>

### Credits (NSQF)

| Credits (NSQF) | TBD |

### Version number

| Version number | 1.0 |

### Sector

| Sector | Construction |

### Drafted on

| Drafted on | 07/06/2015 |

### Sub-sector

| Sub-sector | Real Estate and Infrastructure Construction |

### Last reviewed on

| Last reviewed on | 14/08/2015 |

### Occupation

| Occupation | Rigging |

### Next review date

| Next review date | 14/08/2017 |

### NSQC Clearance on

| NSQC Clearance on | NA |

### Role Description

The job holder is responsible for lifting and erecting RCC Precast units to appropriate locations as per drawing using appropriate rigging gears at construction sites and supervising grouting and caulking operations to the erected precast units at construction sites.

### NSQF level

| NSQF level | 4 |

### Minimum Educational Qualifications

| Minimum Educational Qualifications | Preferably 10th standard |

### Maximum Educational Qualifications

| Maximum Educational Qualifications | N.A |

### Training

(Suggested but not mandatory)

| Training | Recommended training period of 12-16 weeks as per QP of Chargehand – Precast Erection |

### Minimum Job Entry Age

| Minimum Job Entry Age | 18 years |

### Experience

Desirable:

1. Non trained worker: 9 years site experience in same occupation
2. Trained worker: 3 years site experience as a certified Rigger Precast Erection

### Compulsory

1. CON/N0718: Supervise lifting of heavy RCC Precast components at construction sites
2. CON/N0719: Erect and align RCC Precast components at construction sites
3. CON/N0720: Supervise and ensure grouting and caulking activities are as per specification
4. CON/N8001: Work effectively in a team to deliver desired results at the workplace
5. CON/N8002: Plan and organize work to meet expected outcomes
6. CON/N9001: Work according to personal health, safety and environment protocol at construction site

### Applicable National Occupational Standards (NOS)

| Applicable National Occupational Standards (NOS) | Compulsory |

### Optional

<p>| Optional | N.A. |
| Performance Criteria | As described in the relevant OS units |</p>
<table>
<thead>
<tr>
<th>Keywords / Terms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector</td>
<td>Sector is conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.</td>
</tr>
<tr>
<td>Sub-Sector</td>
<td>Sub-Sector is derived from a further breakdown based on the characteristics and interests of its components</td>
</tr>
<tr>
<td>Occupation</td>
<td>Occupation is a set of job roles, which perform similar/related set of functions in an industry</td>
</tr>
<tr>
<td>Job role</td>
<td>Job role defines a unique set of functions that together form a unique employment opportunity in an organization.</td>
</tr>
<tr>
<td>Occupational Standards (OS)</td>
<td>OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet the standard consistently. Occupational Standards are applicable both in the Indian contexts.</td>
</tr>
<tr>
<td>Performance Criteria</td>
<td>Performance Criteria are statements that together specify the standard of performance required when carrying out a task.</td>
</tr>
<tr>
<td>Qualifications Pack (QP)</td>
<td>Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualification Pack is assigned a unique qualification pack code</td>
</tr>
<tr>
<td>Qualification Pack Code</td>
<td>Qualification Pack Code is a unique reference code that identifies a qualifications pack.</td>
</tr>
<tr>
<td>National Occupational Standards (NOS)</td>
<td>NOS are Occupational Standards which apply uniquely in the Indian context.</td>
</tr>
<tr>
<td>Scope</td>
<td>Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.</td>
</tr>
<tr>
<td>Knowledge and Understanding</td>
<td>Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard</td>
</tr>
<tr>
<td>Organizational Context</td>
<td>Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</td>
</tr>
<tr>
<td>Core Skills / Generic Skills</td>
<td>Core Skills or Generic Skills are a group of skills that are key to learning and working in today’s world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.</td>
</tr>
</tbody>
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<tr>
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<tr>
<td>CON</td>
<td>Construction</td>
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<tr>
<td>NSQF</td>
<td>National Skill Qualifications Framework</td>
</tr>
<tr>
<td>QP</td>
<td>Qualification Pack</td>
</tr>
<tr>
<td>OS</td>
<td>Occupational Standards</td>
</tr>
<tr>
<td>TBD</td>
<td>To Be Decided</td>
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</tbody>
</table>
Overview

This NOS covers the skills and knowledge required by a workman to be proficient in supervising the lifting of heavy RCC Precast components at construction sites.
# National Occupational Standard

**Unit Code**: CON/N0718  
**Unit Title (Task)**: Supervise lifting of heavy RCC Precast components at construction sites  
**Description**: This unit describes the skills and knowledge required to supervise lifting of heavy RCC Precast components at construction sites.

## Scope
The scope covers the following:
- Check and ensure that preparatory works are completed as per work requirement prior to lifting
- Supervise lifting operations and provide signals to lifting equipment operators
- Carry out heavy lifting operations using multiple lifting equipments (Tandem Lifting)

## Performance Criteria (PC) w.r.t. the Scope

<table>
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<tr>
<th>Element</th>
<th>Performance Criteria</th>
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</table>
| **Check and ensure that preparatory works are completed as per work requirement prior to lifting** | To be competent, the user/individual on the job must be able to:  
PC1. check and ensure the lifting route is free from obstacles such as live overhead electrical cables, service lines, close vicinity to existing structures or persons  
PC2. ensure area of operation (lifting, unloading) is safely marked, barricaded and safe access path is available to the lifting point  
PC3. ensure that the lifting area is adequately illuminated and clear visibility can be maintained from lifting point to erection location  
PC4. ensure loads to be lifted are placed appropriately at the point of lifting  
PC5. confirm that the lifting equipments under operation and its accessories are in safe working condition  
PC6. check and ensure safe working conditions of lifting gears like shackles, pulleys, hooks, ropes, slings etc. prior to start lifting work  
PC7. check for adequate tightness of slings, belts or ropes anchored to the load as per applicable standard procedure, prior to lifting |
| **Supervise lifting operations and provide signals to lifting equipment operators** | PC8. monitor lifting operation considering size and shape of the loads being lifted  
PC9. use appropriate lifting gear considering weight, shape and size of the load  
PC10. closely monitor angle between slings under tension and tightness of locks at attached points to ensure stability of the suspended load  
PC11. ensure elements or assemblies do not get damaged during lifting operations  
PC12. supervise controlling the movement of suspended loads using tag line or guy rope  
PC13. maintain clear line of vision with the equipment operator  
PC14. provide appropriate signals during various stages at lifting as per standard hand signaling guidelines  
PC15. seek assistance for signaling if load or operator is not visible from own location  
PC16. report to superior promptly and clearly in case of unsafe conditions, safety |
<table>
<thead>
<tr>
<th>Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry out heavy lifting operations using multiple lifting equipments (Tandem Lifting)</td>
</tr>
<tr>
<td>PC17. brief subordinate workmen about lifting plan and safe working methods prior to commencing heavy lifting operations</td>
</tr>
<tr>
<td>PC18. ensure safe distance of equipments and objects as per agreed work plan from human and other near objects while carrying out lifting activity</td>
</tr>
<tr>
<td>PC19. assess position of cranes and loads in order to keep accordance with load lifting plan, safety norms provided for conducting tandem lifting operations</td>
</tr>
<tr>
<td>PC20. confirm full functional tests have been carried out of all power, transmission, control and safety systems of the equipments by competent personnel prior to the commencement of the lift</td>
</tr>
<tr>
<td>PC21. confirm that the weather condition is favorable to heavy lifting activities</td>
</tr>
<tr>
<td>PC22. prioritize and sequence activities related to tandem lifting operations</td>
</tr>
<tr>
<td>PC23. monitor and control speed of lifting when multiple lifting equipments are engaged simultaneously</td>
</tr>
<tr>
<td>PC24. keep close coordination with equipment operators and maintain synchronization throughout lifting activity</td>
</tr>
<tr>
<td>PC25. maintain stable position of objects under suspension (while being lifted) as per standard practice by providing signals to the equipment operators</td>
</tr>
<tr>
<td>PC26. guide objects to the desired locations and ensure their safe lowering to the specified positions</td>
</tr>
<tr>
<td>PC27. execute task as per considerations, assumptions, limit of tolerance specified in applicable work methodology and safety control measures during heavy lifting work, report concerned personnel if otherwise</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Knowledge and Understanding (K)</th>
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<tbody>
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<td>A. Organizational Context (Knowledge of the company / organization and its processes)</td>
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<tr>
<td>KA1. standard procedures for rigging work</td>
</tr>
<tr>
<td>KA2. safety rules and regulations for handling and storing relevant tools and equipment and materials for rigging works</td>
</tr>
<tr>
<td>KA3. personal protection including the use of the related safety gears and equipment</td>
</tr>
<tr>
<td>KA4. precautions and measures required in the lifting and movement of heavy components and materials</td>
</tr>
<tr>
<td>KA5. service request procedures for tools, materials and equipments</td>
</tr>
<tr>
<td>KA6. statutory compliance requirements related to working at height</td>
</tr>
<tr>
<td>B. Technical Knowledge</td>
</tr>
<tr>
<td>KB1. basic sketches / schematic working drawing relevant to rigging works</td>
</tr>
<tr>
<td>KB2. basic principles of measurement, geometry and arithmetic calculation</td>
</tr>
<tr>
<td>KB3. conversion of units of linear, areal and volumetric measurements</td>
</tr>
<tr>
<td>KB4. how to read and interpret drawings, sketches related to precast erection</td>
</tr>
</tbody>
</table>
CON/N0718

**Supervise lifting of heavy RCC Precast components at construction sites**

| KB5. | how to develop sketches and what details to be covered in the sketches |
| KB6. | information of lifting plans and schedules |
| KB7. | how to select lifting gears considering weight, size and shape of loads to be lifted |
| KB8. | ideal weather and environment condition to carry out lifting |
| KB9. | factors affecting lifting operations such as presence of electrical cable, movement of vehicle or person, slope and compaction of base of lifting equipments |
| KB10. | working mechanism and capacity (safe working load- SWL) of different kind of cranes such as mobile, crawler, telescopic, tower or gantry cranes |
| KB11. | operational details of different types of cranes including load lifting posture of the equipment, angle of outrigger to be kept during lifting and maximum reach of the equipment |
| KB12. | working mechanism and SWL of winch machines |
| KB13. | preventive actions to be taken to the cranes under adverse weather condition like thunder-storm, heavy wind flow |
| KB14. | use of different kind of common lifting gears like hooks, shackles, wire rope slings, chain slings, belts, eye bolts, rings, links, swivels and spreader beams |
| KB15. | load carrying capacity of each lifting gears and their specifications |
| KB16. | different safety checks to be carried out to respective safety gears to determine safe usability of them for lifting |
| KB17. | standard hand signaling procedures to be provided during lifting operations |

**Skills (S)**

<table>
<thead>
<tr>
<th align="left">A. Core Skills/ Generic Skills</th>
<th align="left">Writing Skills</th>
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</thead>
<tbody>
<tr>
<td align="left">The user/ individual on the job needs to know and understand how to:</td>
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</tr>
<tr>
<td align="left">SA1.</td>
<td align="left">write in one or more language, preferably in the local language of the site and basic English</td>
</tr>
<tr>
<td align="left">SA2.</td>
<td align="left">provide clear and simple instructions, details &amp; sketches to sub-ordinate</td>
</tr>
<tr>
<td align="left">Reading Skills</td>
<td align="left"></td>
</tr>
<tr>
<td align="left">The user/ individual on the job needs to know and understand how to:</td>
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</tr>
<tr>
<td align="left">SA3.</td>
<td align="left">read one or more language, preferably in the local language of the site and basic English</td>
</tr>
<tr>
<td align="left">SA4.</td>
<td align="left">read sketches, drawing or instructions provided for the rigging work</td>
</tr>
<tr>
<td align="left">SA5.</td>
<td align="left">read various, sign boards, safety rules and safety tags, instructions related to exit routes during emergency at the workplace</td>
</tr>
<tr>
<td align="left">Oral Communication (Listening and Speaking skills)</td>
<td align="left"></td>
</tr>
<tr>
<td align="left">The user/ individual on the job needs to know and understand how to:</td>
<td align="left"></td>
</tr>
<tr>
<td align="left">SA6.</td>
<td align="left">speak one or more language, preferably the local language of the site</td>
</tr>
</tbody>
</table>
### B. Professional Skills

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>SA7.</strong></td>
<td>orally and effectively communicate about sketches, drawing or instructions provided for the rigging work</td>
</tr>
<tr>
<td><strong>SA8.</strong></td>
<td>speak and convey about various, sign boards, safety rules and safety tags , instructions related to exit routes during emergency at the workplace</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th></th>
<th>Decision Making</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB1.</strong></td>
<td>decide whether the work place is safe for working and also relevant task is not creating hazardous condition for others</td>
</tr>
<tr>
<td><strong>SB2.</strong></td>
<td>decide on manpower, tools, material and equipment for relevant work</td>
</tr>
<tr>
<td><strong>SB3.</strong></td>
<td>decide whether the lifting route is free from obstacles</td>
</tr>
<tr>
<td><strong>SB4.</strong></td>
<td>decide whether the weather condition is favorable to heavy lifting activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Plan and Organise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB5.</strong></td>
<td>plan work &amp; organize required resource in coordination with team members and superior</td>
</tr>
<tr>
<td><strong>SB6.</strong></td>
<td>prioritize and sequence activities related to tandem lifting operations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Customer centricity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB7.</strong></td>
<td>perform work as per agreed time schedule and quality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Problem solving</th>
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</thead>
<tbody>
<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB8.</strong></td>
<td>resolve concerns raised by the rigging gang</td>
</tr>
<tr>
<td><strong>SB9.</strong></td>
<td>resolve any conflict within the team</td>
</tr>
<tr>
<td><strong>SB10.</strong></td>
<td>report to superior in case of unsafe conditions, safety violations</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th>Analytical Thinking</th>
</tr>
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<tbody>
<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB11.</strong></td>
<td>correlate the sequence of rigging works with respect to other proceeding activity of other trade</td>
</tr>
<tr>
<td><strong>SB12.</strong></td>
<td>optimize resources</td>
</tr>
<tr>
<td><strong>SB13.</strong></td>
<td>minimize wastages</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Critical Thinking</th>
</tr>
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<tr>
<td><strong>The user/individual on the job needs to know and understand how to:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SB14.</strong></td>
<td>evaluate the complexity of the task and seek assistance and support wherever required</td>
</tr>
<tr>
<td><strong>SB15.</strong></td>
<td>identify violation of any safety norms which may lead to accidents</td>
</tr>
</tbody>
</table>
NOS Version Control

<table>
<thead>
<tr>
<th>NOS Code</th>
<th>CON/N0718</th>
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<tbody>
<tr>
<td>Credits (NSQF)</td>
<td>TBD</td>
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<td>Version number</td>
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<td>Industry</td>
<td>Construction</td>
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<tr>
<td>Drafted on</td>
<td>07/06/2015</td>
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<tr>
<td>Industry Sub-sector</td>
<td>Real Estate and Infrastructure Construction</td>
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<tr>
<td>Last reviewed on</td>
<td>14/08/2015</td>
</tr>
<tr>
<td>Occupation</td>
<td>Rigging</td>
</tr>
<tr>
<td>Next review date</td>
<td>14/08/2017</td>
</tr>
</tbody>
</table>

Supervise lifting of heavy RCC Precast components at construction sites
Overview

This NOS covers the skills and knowledge required by a workman to be proficient in erecting and aligning RCC Precast components at construction sites.
<table>
<thead>
<tr>
<th>Unit Code</th>
<th>CON/N0719</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>Erect and align RCC Precast components at construction sites</td>
</tr>
<tr>
<td>Description</td>
<td>This unit describes the skills and knowledge required to erect and align RCC Precast components at construction sites.</td>
</tr>
</tbody>
</table>
| Scope | The scope covers the following:
- Check and ensure that preparatory works are completed as per work requirement prior to erection
- Ensure completion of erection activities are as per specification and planning |

### Performance Criteria (PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
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</table>
| Check and ensure that preparatory works are completed as per work requirement prior to erection | To be competent, the user/individual on the job must be able to:
- PC1. check for proper access is available to the location of erection
- PC2. check for survey marks and reference points and carry out necessary measurement to ascertain exact location of erection
- PC3. check for shims, bearing pads at appropriate locations
- PC4. check for provisions for bolting, welding, post-tensioning connections are available as per drawing
- PC5. ensure designed area of bearing in the platform or support is available for efficient erection of the components
- PC6. check the area of erection for desired accessibility of load lifting equipments, otherwise report to concerned authority |
| Ensure completion of erection activities are as per specification and planning | PC7. check for hazardous situations at erection site, such as presence of live electrical cables, absence of proper barricading, excessive wind speed and report it to the concerned authority promptly as per requirement
- PC8. check availability of all materials and support equipment (identified by the seniors and required to proceed with the work) and report any shortages
- PC9. install shoring, bracing and guying materials as directed by the foreman/supervisor or specified by erection drawings and details considering local conditions
- PC10. install erection hardware to the units, using appropriate hand tools as per instruction and specification of erection drawing
- PC11. pull, push and hold suspended precast units approximately to the exact location by hand or suitable means during lowering of load
- PC12. communicate efficiently to the signalman or operator for precise movements required to place the object at accurate location
- PC13. supervise and monitor activities by subordinates in order to guide the units to their location
- PC14. place the object to its accurate location efficiently and make required
Erect and align RCC Precast components at construction sites

- adjustments as per erection requirement
- PC15. ensure proper alignment of the erected precast units by carrying out required measurement and checks using appropriate measuring tools and instruments
- PC16. confirm orientation of the erected precast units as per instruction or drawings
- PC17. ensure installation of temporary connections using appropriate tools prior to final positioning of precast units
- PC18. tighten bolted connections to the specified tolerance and torque using appropriate torque wrench wherever required
- PC19. check bolt tightness in case of units having slotted connections
- PC20. install special steel washers to ensure that the specified tension has been developed in the bolt
- PC21. check location of shims, bearing pads for their proper positioning
- PC22. install expansion bolts using prescribed installation procedures and quality control specifications
- PC23. check temporary supports and connections to ensure stabilization of units in its position until final connections are made
- PC24. report to superior for completion or difficulties faced promptly and efficiently
- PC25. report to concerned authority promptly in case of any safety violation
- PC26. supervise observation of applicable safety practices by subordinates at workplace

### Knowledge and Understanding (K)

<table>
<thead>
<tr>
<th>A. Organizational Context</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Knowledge of the company /</td>
<td>KA1. standard procedures for rigging work</td>
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<tr>
<td>organization and its processes)</td>
<td>KA2. safety rules and regulations for handling and storing relevant tools and equipment for rigging works</td>
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<td>KA3. personal protection including the use of the related safety gears and equipment</td>
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<th>B. Technical Knowledge</th>
<th>The user/individual on the job needs to know and understand:</th>
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<td>KB1. basic sketches / schematic working drawing relevant to rigging works</td>
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<td>KB3. conversion of units of linear, areal and volumetric measurements</td>
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<tr>
<td></td>
<td>KB4. information of lifting plans and schedules</td>
</tr>
<tr>
<td></td>
<td>KB5. applicable tolerance to respective erection job</td>
</tr>
<tr>
<td></td>
<td>KB6. sequence of erection works as per proposed work method statement</td>
</tr>
</tbody>
</table>
Erect and align RCC Precast components at construction sites

<table>
<thead>
<tr>
<th>Knowledge (KB)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB7.</td>
<td>Linear unit of measurement and their conversion</td>
</tr>
<tr>
<td>KB8.</td>
<td>Basic arithmetic and concept of geometry</td>
</tr>
<tr>
<td>KB9.</td>
<td>Checks to be carried out to ensure readiness of base of erections</td>
</tr>
<tr>
<td>KB10.</td>
<td>How to check alignment of erected elements using measuring tools and instruments</td>
</tr>
<tr>
<td>KB11.</td>
<td>Technique of positing of elements to their locations within tolerance limits</td>
</tr>
<tr>
<td>KB12.</td>
<td>Use of barricading, safety signage at the location of erection</td>
</tr>
<tr>
<td>KB13.</td>
<td>How to fill up check lists, permits applicable to erection operations</td>
</tr>
<tr>
<td>KB14.</td>
<td>Hazards related to precast erection activities, height work</td>
</tr>
</tbody>
</table>

Skills (S)

A. Core Skills/ Generic Skills

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<tr>
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<td>The user/ individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SA3. Read one or more language, preferably in the local language of the site and basic English</td>
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<tr>
<td>SA4. Read sketches, drawing or instructions provided for the rigging work</td>
</tr>
<tr>
<td>SA5. Read various, sign boards, safety rules and safety tags, instructions related to exit routes during emergency at the workplace</td>
</tr>
</tbody>
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<tr>
<th>Oral Communication (Listening and Speaking skills)</th>
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<tr>
<td>The user/ individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SA6. Speak one or more language, preferably in the local language of the site</td>
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<tr>
<td>SA7. Orally and effectively communicate about sketches, drawing or instructions provided for the rigging work</td>
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<tr>
<td>SA8. Speak and convey about various, sign boards, safety rules and safety tags, instructions related to exit routes during emergency at the workplace</td>
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</table>

B. Professional Skills

<table>
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<tr>
<th>Decision Making</th>
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<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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<td>SB1. Decide whether the work place is safe for working and also relevant task is not creating hazardous condition for others</td>
</tr>
<tr>
<td>SB2. Decide on manpower, tools, material and equipment for relevant work</td>
</tr>
<tr>
<td>SB3. Decide whether the area of operation is safe for precast erection works</td>
</tr>
</tbody>
</table>

Plan and Organise
**Erect and align RCC Precast components at construction sites**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<td>SB4. plan work &amp; organize required resource in coordination with team members and superior</td>
<td></td>
</tr>
<tr>
<td><strong>Customer centricity</strong></td>
<td></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
<td></td>
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<tr>
<td>SB5. perform work as per agreed time schedule and quality</td>
<td></td>
</tr>
<tr>
<td><strong>Problem solving</strong></td>
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<tr>
<td><strong>Analytical Thinking</strong></td>
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<td>SB9. correlate the sequence of rigging works with respect to other proceeding activity of other trade</td>
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<td>SB10. optimize resources</td>
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<td>SB11. minimize wastages</td>
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<tr>
<td><strong>Critical Thinking</strong></td>
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</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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</tr>
<tr>
<td>SB12. evaluate the complexity of the task and seek assistance and support wherever required</td>
<td></td>
</tr>
<tr>
<td>SB13. identify violation of any safety norms which may lead to accidents</td>
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</tr>
</tbody>
</table>
**NOS Version Control**

<table>
<thead>
<tr>
<th>NOS Code</th>
<th>CON/N0719</th>
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<tbody>
<tr>
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<td>Real Estate and Infrastructure Construction</td>
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<tr>
<td>Occupation</td>
<td>Rigging</td>
</tr>
</tbody>
</table>
Overview

This NOS covers the skills and knowledge required by a workman to be proficient in supervising and ensuring grouting and caulking activities are as per specification.
<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
</table>
| Supervise preparation of grouting and caulking agents prior to their application | To be competent, the user/individual on the job must be able to:  
  PC1. ensure cleaning of RCC precast unit surfaces prior to application of bonding agents  
  PC2. supervise installation of temporary arrangements surrounding to the locations to be grouted  
  PC3. calculate tentative material requirement for grouting works and report to concerned authority  
  PC4. ensure necessary materials and tools are present in order to carry out grouting operations  
  PC5. ensure proportions of materials used to form grout is as per specification  
  PC6. supervise execution of grouting operations as per specification and ensure grouts are being applied within stipulated time according to manufacturer’s specification  
  PC7. monitor use of grouting agents and control wastage of the same during work  
  PC8. take corrective actions in case of faulty grouting works as per instruction of concerned authority  
  PC9. ensure use of safety signage and PPEs by subordinates during activities |
| Supervise grouting and caulking works        | PC10. ensure cleaning and preparation of surfaces of precast units for dirt and other foreign matters using appropriate tools  
  PC11. supervise preparation of caulking and sealant as per specification, prior to their application  
  PC12. place and ensure proper positioning of sealing  
  PC13. supervise application of primer on RCC precast joints as per specification  
  PC14. apply caulking agents to complex locations precisely using appropriate hand tools  
  PC15. check completed works for conformance with specification and proposed work method and take remedial actions if any discrepancy observed a per instruction |
### Knowledge and Understanding (K)

<table>
<thead>
<tr>
<th>A. Organizational Context (Knowledge of the company / organization and its processes)</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>KA1.</td>
<td>standard procedures for rigging work</td>
</tr>
<tr>
<td>KA2.</td>
<td>safety rules and regulations for handling and storing relevant tools and equipment and materials for rigging works</td>
</tr>
<tr>
<td>KA3.</td>
<td>personal protection including the use of the related safety gears and equipment</td>
</tr>
<tr>
<td>KA4.</td>
<td>precautions and measures required in the lifting and movement of heavy components and materials</td>
</tr>
<tr>
<td>KA5.</td>
<td>service request procedures for tools, materials and equipments</td>
</tr>
<tr>
<td>KA6.</td>
<td>statutory compliance requirements related to working at height</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Technical Knowledge</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB1.</td>
<td>basic sketches / schematic working drawing relevant to rigging works</td>
</tr>
<tr>
<td>KB2.</td>
<td>basic principles of measurement, geometry and arithmetic calculation</td>
</tr>
<tr>
<td>KB3.</td>
<td>conversion of units of linear, areal and volumetric measurements</td>
</tr>
<tr>
<td>KB4.</td>
<td>information of lifting plans and schedules</td>
</tr>
<tr>
<td>KB5.</td>
<td>applicable tolerance to respective erection job</td>
</tr>
<tr>
<td>KB6.</td>
<td>sequence of erection works as per proposed work method statement</td>
</tr>
<tr>
<td>KB7.</td>
<td>specification related with grouting and caulking operations</td>
</tr>
<tr>
<td>KB8.</td>
<td>materials used for grouting and caulking works and their physical properties</td>
</tr>
<tr>
<td>KB9.</td>
<td>how to prepare mix for grouting and caulking work as per specification</td>
</tr>
<tr>
<td>KB10.</td>
<td>correct technique of application of solution during grouting and caulking works</td>
</tr>
<tr>
<td>KB11.</td>
<td>use of hand and power tools during grouting and caulking operations</td>
</tr>
<tr>
<td>KB12.</td>
<td>how to fill up check lists, permits applicable to erection operations</td>
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### Skills (S)

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<tr>
<th>A. Core Skills/ Generic Skills</th>
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<tr>
<th>Reading Skills</th>
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<tr>
<td>SA3.</td>
<td>read one or more language, preferably in the local language of the site and basic English</td>
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CON/N0720  Supervise and ensure grouting and caulking activities are as per specification

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<tr>
<th>B. Professional Skills</th>
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<td>The user/individual on the job needs to know and understand how to:</td>
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<th>B. Professional Skills</th>
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<td></td>
<td>SB3. decide whether the preparation of grouting and caulking agents is as per specifications prior to their application</td>
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<tr>
<th>B. Professional Skills</th>
<th>Plan and Organise</th>
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<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<th>B. Professional Skills</th>
<th>Problem solving</th>
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<tr>
<th>B. Professional Skills</th>
<th>Critical Thinking</th>
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</table>
The user/individual on the job needs to know and understand how to:

SB13. evaluate the complexity of the task and seek assistance and support wherever required

SB14. identify violation of any safety norms which may lead to accidents
CON/N0720  Supervise and ensure grouting and caulking activities are as per specification

NOS Version Control

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<tr>
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<tbody>
<tr>
<td>Version number</td>
<td>1.0</td>
</tr>
<tr>
<td>Drafted on</td>
<td>07/06/2015</td>
</tr>
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<td>Last reviewed on</td>
<td>14/08/2015</td>
</tr>
<tr>
<td>Next review date</td>
<td>14/08/2017</td>
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</tbody>
</table>
Overview

This NOS covers the skill and knowledge required to work effectively within a team to achieve the desired results.
CON/N8001 Work effectively in a team to deliver desired results at the workplace

<table>
<thead>
<tr>
<th>Unit Code</th>
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<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>Work effectively in a team to deliver desired results at the workplace</td>
</tr>
<tr>
<td>Description</td>
<td>This unit describes the skills and knowledge required to work effectively within a team to achieve the desired results.</td>
</tr>
</tbody>
</table>
| Scope | The scope covers the following:  
- Interact and communicate effectively with co-workers, superiors and subordinates across different teams  
- Support co-workers, superiors and subordinates within the team and across interfacing teams to ensure effective execution of assigned task |

### Performance Criteria (PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
</table>
| Interact and communicate in effective and conclusive manner | To be competent, the user / individual on the job must be able to:  
PC1. pass on work related information/ requirement clearly to the team members  
PC2. inform co-workers and superiors about any kind of deviations from work  
PC3. address the problems effectively and report if required  to immediate supervisor appropriately  
PC4. receive instructions clearly from superiors and respond effectively on the same  
PC5. communicate to team members/subordinates for appropriate work technique and method  
PC6. seek clarification and advice as per the requirement and applicability |
| Support co-workers to execute project requirements | PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams  
PC8. work together with co-workers in a synchronized manner |

### Knowledge and Understanding (K)

| A. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:  
KA1. own roles and responsibilities  
KA2. importance of effective communication and establishing strong working relationships with co-workers  
KA3. risks of a failure in teamwork in terms of effects on project outcomes, timelines, safety at the construction site, etc.  
KA4. different modes of communication, and its appropriate usage  
KA5. importance of creating healthy and cooperative work environment among the gangs of workers |

### Work effectively in a team to deliver desired results at the workplace

#### B. Technical Knowledge

The user/individual on the job needs to know and understand:

- **KB1.** different activities within his work area where an interaction with other workers is required
- **KB2.** applicable techniques of work, properties of materials used, tools and tackles used, safety standards that co-workers might need as per the requirement
- **KB3.** importance of proper and effective communication and the expected adverse effects in case of failure relating to quality, timelines, safety, risks at the construction project site
- **KB4.** importance and need of supporting co-workers facing problems for smooth functioning of work

#### Skills (S)

##### A. Core Skills/Generic Skills

**Writing Skills**

The user/individual on the job needs to know and understand how to:

- **SA1.** write in one or more languages, preferably in the local language of the site

**Reading Skills**

The user/individual on the job needs to know and understand how to:

- **SA2.** read in one or more languages, preferably in the local language of the site
- **SA3.** read communication from team members regarding work completed, materials used, tools and tackles used, support required

**Oral Communication (Listening and Speaking skills)**

The user/individual on the job needs to know and understand how to:

- **SA4.** speak in one or more languages, preferably in one of the local languages of the site
- **SA5.** listen and follow instructions/communication shared by superiors/co-workers regarding team requirements or interfaces during work processes
- **SA6.** orally communicate with co-workers regarding support required to complete the respective work

##### B. Professional Skills

**Decision Making**

The user/individual on the job needs to know and understand how to:

- **SB1.** decide on what information is to be shared with co-workers within the team or from interfacing gang of workers

**Plan and Organise**

The user/individual on the job needs to know and understand how to:

- **SB2.** plan work and organize required resources in coordination with team members
### Work effectively in a team to deliver desired results at the workplace

<table>
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<tr>
<th><strong>Customer centricity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB3. complete all assigned task in coordination with team members</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Problem solving</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB4. take initiative in resolving issues among co-workers or report the same to superiors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Analytical Thinking</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB5. ensure best ways of coordination among team members</td>
</tr>
<tr>
<td>SB6. communicate with co-workers considering their educational / social background</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Critical Thinking</strong></th>
</tr>
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<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<td>SB7. evaluate the complexity of task and determine if any guidance is required from superiors</td>
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</table>
CON/N8001  Work effectively in a team to deliver desired results at the workplace

**NOS Version Control**

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</table>
Overview

This NOS covers the skills and knowledge required to plan and organize work in order to meet expected quality in established time frame.
## Plan and organize work to meet expected outcomes

<table>
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<tr>
<th><strong>Unit Code</strong></th>
<th>CON/N8002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Title (Task)</strong></td>
<td>Plan and organize work to meet expected outcomes</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>This unit describes the knowledge and the skills required for an individual to plan and organize own work in order to meet expected outcome.</td>
</tr>
</tbody>
</table>
| **Scope** | This scope covers the following:  
- Prioritize work activities to achieve desired results  
- Organize desired resources prior to commencement of work |

### Performance Criteria (PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Performance Criteria</strong></th>
</tr>
</thead>
</table>
| **Prioritize work activities to achieve desired results** | To be competent, the user / individual on the job must be able to:  
PC1. understand clearly the targets and timelines set by superiors  
PC2. plan activities as per schedule and sequence  
PC3. provide guidance to the subordinates to obtain desired outcome  
PC4. plan housekeeping activities prior to and post completion of work |
| **Organize desired resources prior to commencement of work** | PC5. list and arrange required resources prior to commencement of work  
PC6. select and employ correct tools, tackles and equipment for completion of desired work  
PC7. complete the work with allocated resources  
PC8. engage allocated manpower in an appropriate manner  
PC9. use resources in an optimum manner to avoid any unnecessary wastage  
PC10. employ tools, tackles and equipment with care to avoid damage to the same  
PC11. organize work output, materials used, tools and tackles deployed, processes adopted to be in line with the specified standards and instructions |

### Knowledge and Understanding (K)

#### A. Organizational Context  
(Knowledge of the company / organization and its processes)

- The user/individual on the job needs to know and understand:  
  KA1. importance of proper housekeeping  
  KA2. policies, procedures and work targets set by superiors  
  KA3. roles and responsibilities in executing the work for subordinates and self

#### B. Technical Knowledge

- The user/individual on the job needs to know and understand:  
  KB1. standard practices of work to be adopted for assigned task  
  KB2. how to use available resources in a judicious and appropriate manner to minimize wastages or damage

### Skills (S)

---
Plan and organize work to meet expected outcomes

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Core Skills/ Generic Skills</strong></td>
<td><strong>Writing Skills</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SA1. write in one or more language, preferably in the local language of the site</td>
</tr>
<tr>
<td></td>
<td>SA1. list out the assigned works and targets</td>
</tr>
<tr>
<td></td>
<td><strong>Reading Skills</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SA2. read in one or more language, preferably in the local language of the site</td>
</tr>
<tr>
<td></td>
<td>SA3. read communication from co-workers, superiors and notices from other departments as per requirement of the level</td>
</tr>
<tr>
<td></td>
<td><strong>Oral Communication (Listening and Speaking skills)</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SA4. speak in one or more language, preferably in one of the local language of the site</td>
</tr>
<tr>
<td></td>
<td>SA5. listen and follow communication shared by co-workers regarding standard work processes, resources available, timelines, etc.</td>
</tr>
<tr>
<td></td>
<td>SA6. communicate effectively with co-workers and subordinates</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>B. Professional Skills</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Decision Making</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SB1. decide on what sequence is to be adopted for execution of work</td>
</tr>
<tr>
<td></td>
<td><strong>Plan and Organise</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SB2. plan and organize the materials, tools, tackles and equipment required to execute the work</td>
</tr>
<tr>
<td></td>
<td><strong>Customer centricity</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SB3. complete all assigned task with proper planning and organizing</td>
</tr>
<tr>
<td></td>
<td><strong>Problem solving</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SB4. arrange or seek help to arrange for material, tools and tackles in case of shortfall</td>
</tr>
<tr>
<td></td>
<td><strong>Analytical Thinking</strong></td>
</tr>
<tr>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td>SB5. analyze areas of work which could result in a delay of work, wastage of material or damage to tools and tackles</td>
</tr>
</tbody>
</table>
Plan and organize work to meet expected outcomes

<table>
<thead>
<tr>
<th>Critical Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB6. evaluate potential solutions to minimize avoidable delays and wastages at the construction site</td>
</tr>
</tbody>
</table>
Plan and organize work to meet expected outcomes

## NOS Version Control

<table>
<thead>
<tr>
<th>NOS Code</th>
<th>CON/N8002</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Industry</td>
<td>Construction</td>
</tr>
<tr>
<td>Industry Sub-sector</td>
<td>Real Estate and Infrastructure Construction</td>
</tr>
<tr>
<td>Occupation</td>
<td>Rigging</td>
</tr>
<tr>
<td>Version number</td>
<td>1.0</td>
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<tr>
<td>Drafted on</td>
<td>07/06/2015</td>
</tr>
<tr>
<td>Last reviewed on</td>
<td>14/08/2015</td>
</tr>
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<td>Next review date</td>
<td>14/08/2017</td>
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</table>
Overview

This NOS covers the skill and knowledge required for an individual to work according to personal health, safety and environmental protocol at construction site.
### National Occupational Standard

**Unit Code**  
CON/N9001

**Unit Title**  
Work according to personal health, safety and environment protocol at construction site

**Description**  
This NOS covers the skill and knowledge required for an individual to work according to personal health, safety and environmental protocol at construction site.

**Scope**  
The scope covers the following:
- Follow safety norms as defined by organization
- Adopt healthy & safe work practices
- Implement good housekeeping and environment protection process and activities

---

### Performance Criteria (PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
</table>
| Follow safety norms as defined by organization | To be competent, the user / individual on the job must be able to:  
PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority  
PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities  
PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable  
PC4. participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site  
PC5. identify near miss , unsafe condition and unsafe act |
| Adopt healthy & safe work practices        | 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)  
PC7. handle all required tools, tackles, materials & equipment safely  
PC8. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines  
PC9. install and apply properly all safety equipment as instructed  
PC10. follow safety protocol and practices as laid down by site EHS department |
| Implement good housekeeping practices | PC11. collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes  
PC12. apply ergonomic principles wherever required |
|---|---|
| **Knowledge and Understanding (K)** | The user/individual on the job needs to know and understand:  
KA1. reporting procedures in cases of breaches or hazards for site safety, accidents, and emergency situations as per guidelines  
KA2. types of safety hazards at construction sites  
KA3. basic ergonomic principles as per applicability |
| **A. Organizational Context**  
(Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:  
KB1. the procedure for responding to accidents and other emergencies at site  
KB2. appropriate personal protective equipment to used based on various working conditions  
KB3. importance of handling tools, equipment and materials as per applicable  
KB4. health and environments effect of construction materials as per applicability  
KB5. various environmental protection methods as per applicability  
KB6. storage of waste including the following at appropriate location:  
- non-combustible scrap material and debris  
- combustible scrap material and debris  
- general construction waste and trash (non-toxic, non-hazardous)  
- any other hazardous wastes  
- any other flammable wastes  
KB7. how to use hazardous material, in a safe and appropriate manner as per applicability  
KB8. safety relevant to tools, tackles, & requirement as per applicability  
KB9. housekeeping activities relevant to task |
| **Skills (S)** | **Writing Skills**  
The user/individual on the job needs to know and understand how to:  
SA2. write in one or more language, preferably in the local language of the site  
SA3. fill safety formats for near miss, unsafe conditions and safety suggestions |
| **A. Core Skills/ Generic Skills** | **Reading Skills**  
The user/individual on the job needs to know and understand how to:  
SA4. read in one or more language, preferably in the local language of the site  
SA5. read sign boards, notice boards relevant to safety |
### Oral Communication (Listening and Speaking skills)

The user/individual on the job needs to know and understand how to:

- **SA6.** speak in one or more language, preferably in one of the local language of the site
- **SA7.** listen instructions / communication shared by site EHS and superiors regarding site safety, and conducting tool box talk
- **SA8.** communicate reporting of site conditions, hazards, accidents, etc.

### B. Professional Skills

#### Decision Making

The user/individual on the job needs to know and understand how to:

- **SB1.** not create unsafe conditions for others
- **SB2.** keep the workplace clean and tidy

#### Plan and Organise

- **SB3.** N.A

#### Customer centricity

- **SB4.** N.A

#### Problem solving

The user/individual on the job needs to know and understand how to:

- **SB5.** identify safety risks that affect the health, safety and environment for self and others working in the vicinity, tackle it if within limit or report to appropriate authority

#### Analytical Thinking

The user/individual on the job needs to know and understand how to:

- **SB6.** assess and analyze areas which may affect health, safety and environment protocol on the site

#### Critical Thinking

The user/individual on the job needs to know and understand how to:

- **SB7.** ensure personal safety behavior
- **SB8.** respond to emergency
## NOS Version Control

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>
## CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role**
Chargehand - Precast Erection

**Qualification Pack**
CON/Q0706

**Sector Skill Council**
Construction Skill Development Council Of India

### 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.

### Assessment Criteria for outcomes

<table>
<thead>
<tr>
<th>Assessment outcomes</th>
<th>Assessment Criteria for outcomes</th>
<th>Total Mark</th>
<th>Out Of</th>
<th>Theory</th>
<th>Skills Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>CON/N0718: Supervise lifting of heavy RCC Precast components at construction sites</td>
<td>PC1. check and ensure the lifting route is free from obstacles such as live overhead electrical cables, service lines, close vicinity to existing structures or persons</td>
<td>100</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PC2. ensure area of operation (lifting, unloading) is safely marked, barricaded and safe access path is available to the lifting point</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PC3. ensure that the lifting area is adequately illuminated and clear visibility can be maintained from lifting point to erection location</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PC4. ensure loads to be lifted are placed appropriately at the point of lifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PC5. confirm that the lifting equipments under</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Assessment Criteria for Chargehand – Precast Erection

<table>
<thead>
<tr>
<th>PC</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC6</td>
<td>check and ensure safe working conditions of lifting gears like shackles, pulleys, hooks, ropes, slings etc. prior to start lifting work</td>
<td>2 0.5 1</td>
</tr>
<tr>
<td>PC7</td>
<td>check for adequate tightness of slings, belts or ropes anchored to the load as per applicable standard procedure, prior to lifting</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC8</td>
<td>monitor lifting operation considering size and shape of the loads being lifted</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC9</td>
<td>use appropriate lifting gear considering weight, shape and size of the load</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC10</td>
<td>closely monitor angle between slings under tension and tightness of locks at attached points to ensure stability of the suspended load</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC11</td>
<td>ensure elements or assemblies do not get damaged during lifting operations</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC12</td>
<td>supervise controlling the movement of suspended loads using tag line or guy rope</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC13</td>
<td>maintain clear line of vision with the equipment operator</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC14</td>
<td>provide appropriate signals during various stages at lifting as per standard hand signaling guidelines</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC15</td>
<td>seek assistance for signaling if load or operator is not visible from own location</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC16</td>
<td>report to superior promptly and clearly in case of unsafe conditions, safety violations</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC17</td>
<td>brief subordinate workmen about lifting plan and safe working methods prior to commencing heavy lifting operations</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC18</td>
<td>ensure safe distance of equipments and objects as per agreed work plan from human and other near objects while carrying out lifting activity</td>
<td>2 0.5 1</td>
</tr>
<tr>
<td>PC19</td>
<td>assess position of cranes and loads in order to keep accordance with load lifting plan, safety norms provided for conducting tandem lifting operations</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC20</td>
<td>confirm full functional tests have been carried out of all power, transmission, control and safety systems of the equipments by competent personnel prior to the commencement of the lift</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC21</td>
<td>confirm that the weather condition is favorable to heavy lifting activities</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC22</td>
<td>prioritize and sequence activities related to tandem lifting operations</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC23</td>
<td>monitor and control speed of lifting when multiple lifting equipments are engaged simultaneously</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC24</td>
<td>keep close coordination with equipment operators and maintain synchronization throughout lifting activity</td>
<td>7 2 5</td>
</tr>
</tbody>
</table>
### Assessment Criteria for Chargehand – Precast Erection

<table>
<thead>
<tr>
<th>PC Code</th>
<th>Task Description</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC25.</td>
<td>maintain stable position of objects under suspension (while being lifted) as per standard practice by providing signals to the equipment operators</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC26.</td>
<td>guide objects to the desired locations and ensure their safe lowering to the specified positions</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC27.</td>
<td>execute task as per considerations, assumptions, limit of tolerance specified in applicable work methodology and safety control measures during heavy lifting work, report concerned personnel if otherwise</td>
<td>7 2 5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>100 30 70</td>
</tr>
<tr>
<td></td>
<td><strong>CON/N0719:</strong> Erect and align RCC Precast components at construction sites</td>
<td></td>
</tr>
<tr>
<td>PC1.</td>
<td>check for proper access is available to the location of erection</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC2.</td>
<td>check for survey marks and reference points and carry out necessary measurement to ascertain exact location of erection</td>
<td></td>
</tr>
<tr>
<td>PC3.</td>
<td>check for shims, bearing pads at appropriate locations</td>
<td></td>
</tr>
<tr>
<td>PC4.</td>
<td>check for provisions for bolting, welding, post-tensioning connections are available as per drawing</td>
<td></td>
</tr>
<tr>
<td>PC5.</td>
<td>ensure designed area of bearing in the platform or support is available for efficient erection of the components</td>
<td></td>
</tr>
<tr>
<td>PC6.</td>
<td>check the area of erection for desired accessibility of load lifting equipments, otherwise report to concerned authority</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC7.</td>
<td>check for hazardous situations at erection site, such as presence of live electrical cables, absence of proper barricading, excessive wind speed and report it to the concerned authority promptly as per requirement</td>
<td></td>
</tr>
<tr>
<td>PC8.</td>
<td>check availability of all materials and support equipment (identified by the seniors and required to proceed with the work) and report any shortages</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC9.</td>
<td>install shoring, bracing and guying materials as directed by the foreman/ supervisor or specified by erection drawings and details considering local conditions</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC10.</td>
<td>install erection hardware to the units, using appropriate hand tools as per instruction and specification of erection drawing</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC11.</td>
<td>pull, push and hold suspended precast units approximately to the exact location by hand or suitable means during lowering of load</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC12.</td>
<td>communicate efficiently to the signalman or operator for precise movements required to place the object at accurate location</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC13.</td>
<td>supervise and monitor activities by subordinates in order to guide the units to their location</td>
<td>3 1 2</td>
</tr>
</tbody>
</table>
Assessment Criteria for Chargehand – Precast Erection

<table>
<thead>
<tr>
<th>PC</th>
<th>Criteria</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC14.</td>
<td>place the object to its accurate location efficiently and make required adjustments as per erection requirement</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC15.</td>
<td>ensure proper alignment of the erected precast units by carrying out required measurement and checks using appropriate measuring tools and instruments</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC16.</td>
<td>confirm orientation of the erected precast units as per instruction or drawings</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC17.</td>
<td>ensure installation of temporary connections using appropriate tools prior to final positioning of precast units</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC18.</td>
<td>tighten bolted connections to the specified tolerance and torque using appropriate torque wrench wherever required</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC19.</td>
<td>check bolt tightness in case of units having slotted connections</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC20.</td>
<td>install special steel washers to ensure that the specified tension has been developed in the bolt</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC21.</td>
<td>check location of shims, bearing pads for their proper positioning</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC22.</td>
<td>install expansion bolts using prescribed installation procedures and quality control specifications</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC23.</td>
<td>check temporary supports and connections to ensure stabilization of units in its position until final connections are made</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC24.</td>
<td>report to superior for completion or difficulties faced promptly and efficiently</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC25.</td>
<td>report to concerned authority promptly in case of any safety violation</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC26.</td>
<td>supervise observation of applicable safety practices by subordinates at workplace</td>
<td>3 1 2</td>
</tr>
<tr>
<td>CON/N0720:</td>
<td>Supervise and ensure grouting and caulking activities are as per specification</td>
<td></td>
</tr>
<tr>
<td>PC1.</td>
<td>ensure cleaning of RCC precast unit surfaces prior to application of bonding agents</td>
<td>3 1 2</td>
</tr>
<tr>
<td>PC2.</td>
<td>supervise installation of temporary arrangements surrounding to the locations to be grouted</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC3.</td>
<td>calculate tentative material requirement for grouting works and report to concerned authority</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC4.</td>
<td>ensure necessary materials and tools are present in order to carry out grouting operations</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC5.</td>
<td>ensure proportions of materials used to form grout is as per specification</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC6.</td>
<td>supervise execution of grouting operations as per specification and ensure grouts are being applied within stipulated time according to manufacturer’s specification</td>
<td>7 2 5</td>
</tr>
<tr>
<td>PC7.</td>
<td>monitor use of grouting agents and control wastage of the same during work</td>
<td>7 2 5</td>
</tr>
</tbody>
</table>

**Total** 100 30 70
### Assessment Criteria for Chargehand – Precast Erection

| PC8. | take corrective actions in case of faulty grouting works as per instruction of concerned authority | 7 | 2 | 5 |
| PC9. | ensure use of safety signage and PPEs by subordinates during activities | 7 | 2 | 5 |
| PC10. | ensure cleaning and preparation of surfaces of precast units for dirt and other foreign matters using appropriate tools | 7 | 2 | 5 |
| PC11. | supervise preparation of caulking and sealant as per specification, prior to their application | 7 | 2 | 5 |
| PC12. | place and ensure proper positioning of sealing | 7 | 2 | 5 |
| PC13. | supervise application of primer on RCC precast joints as per specification | 7 | 2 | 5 |
| PC14. | apply caulking agents to complex locations precisely using appropriate hand tools | 7 | 2 | 5 |
| PC15. | check completed works for conformance with specification and proposed work method and take remedial actions if any discrepancy observed a per instruction | 7 | 2 | 5 |
| **Total** | 100 | 30 | 70 |

#### 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 | 7 | 2 | 5 |
| PC2. | inform co-workers and superiors about any kind of deviations from work | 7 | 2 | 5 |
| PC3. | address the problems effectively and report if required to immediate supervisor appropriately | 10 | 3 | 7 |
| PC4. | receive instructions clearly from superiors and respond effectively on same | 7 | 2 | 5 |
| PC5. | communicate to team members/subordinates for appropriate work technique and method | 10 | 3 | 7 |
| PC6. | seek clarification and advice as per requirement and applicability | 7 | 2 | 5 |
| PC7. | hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams | 27 | 8 | 19 |
| PC8. | work together with co-workers in a synchronized manner | 27 | 8 | 19 |
| **Total** | 100 | 30 | 70 |

#### CON/N8002: Plan and organize work to meet expected outcomes

| PC1. | understand clearly the targets and timelines set by superiors | 7 | 2 | 5 |
| PC2. | plan activities as per schedule and sequence | 7 | 2 | 5 |
| PC3. | provide guidance to the subordinates to obtain desired outcome | 10 | 3 | 7 |
| PC4. | plan housekeeping activities prior to and post completion of work | 7 | 2 | 5 |
| PC5. | list and arrange required resources prior to commencement of work | 10 | 3 | 7 |
| PC6. | select and employ correct tools, tackles and equipment for completion of desired work | 10 | 3 | 7 |
| PC7. | complete the work with allocated resources | 10 | 3 | 7 |
### Assessment Criteria for Chargehand – Precast Erection

<table>
<thead>
<tr>
<th>PC8.</th>
<th>engage allocated manpower in an appropriate manner</th>
<th>10</th>
<th>3</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC9.</td>
<td>use resources in an optimum manner to avoid any unnecessary wastage</td>
<td>10</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>PC10.</td>
<td>employ tools, tackles and equipment with care to avoid damage to the same</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>PC11.</td>
<td>organize work output, materials used, tools and tackles deployed,</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>PC12.</td>
<td>processes adopted to be in line with the specified standards and instructions</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>30</td>
<td>70</td>
</tr>
</tbody>
</table>

#### 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 authority | 7 | 2 | 5 |
| PC2. | follow emergency and evacuation procedures in case of accidents, fires, natural calamities | 7 | 2 | 5 |
| PC3. | follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable | 10 | 3 | 7 |
| PC4. | participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site | 7 | 2 | 5 |
| PC5. | identify near miss, unsafe condition and unsafe act | 7 | 2 | 5 |
| 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) | 100 | 10 | 3 | 7 |
| PC7. | handle all required tools, tackles, materials & equipment safely | 7 | 2 | 5 |
| PC8. | follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines | 7 | 2 | 5 |
| PC9. | install and apply properly all safety equipment as instructed | 13 | 4 | 9 |
| PC10. | follow safety protocol and practices as laid down by site EHS department | 13 | 4 | 9 |
| PC11. | collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes | 7 | 2 | 5 |
| PC12. | apply ergonomic principles wherever required | 7 | 2 | 5 |
| Total | | 100 | 30 | 70 |