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| **S.N.** | **ACTIVITY** | **HAZARD** | **CAUSES OF HAZARD** | **CONSEQUENCES/ IMPACT** | **RISK EVALUATION** | | **RISK LEVEL** | **IMPLEMENTED CONTROL MEASURES** | **RESIDUAL RISK** | | | **ACCEPT Y/N?** |
| **P** | **S** | **H/M/L** | **P** | **S** | **H/M/L** |
| **1** | Use of power actuated tools | Use by unqualified workers  -Sharp edged tools  -Defected hand tools  -Personnel injury  -Nips and cuts  -Defected / Homemade / modified hand tool | Unqualified workers  Improper inspection of power tools before use | Personal Injury | 1 | 2 | 2 | -Ensure all hand tools are inspected and approved. Damaged equipment is to be tagged out and remove from site.  -Ensure trained and experienced employees are assigned to the job.  -Ensure all hand tools are checked for their good working condition prior to the start of the job by operators.  -Ensure no defected/ handmade/ modified tools are available at site.  -Full face shield, hearing protection, hand gloves must be worn.  -Gun power cartages must not be kept in pockets, always kept in the makers package.  -Misfire cartages must be placed in bucket of water.  -All workers operating power actuated tool must be trained.  -Power actuated shall never be left unattended, unused equipment must be place back into storage box. | 1 | 4 | 2 | Y |
| **2** | Concrete testing and placing | Miss handling of concrete during testing and placing | Failure to follow the usage of proper P.P.E | Hand burn, injury due to chemicals | 4 | 3 | 12 | * Use of proper hand gloves * Training and safety procedures to be followed | 1 | 3 | 3 | Y |
| **3** | Pumping concrete | Equipment,  Failure of pumps | Improper inspection of joints and unskilled operators and mechanical failure | Fatality, injury | 3 | 4 | 12 | * Ensure spill precautions by putting polythene sheets and timely removal to designated place * Proper clamping of hose pipe of pump * Competent Operator License * Ensure pump has valid certificate | 1 | 4 | 4 | Y |
| **4** | Pouring concrete with bucket | Failure of concrete bucket | Load can fall (Concrete) | Severe personal injury, Property damage | 4 | 5 | 20 | * Make sure competent operator and rigger are assigned * Use certified equipment / lifting tackles * Use third party certified buckets * Use tag line * Follow the SWL * Inspect the bucket during use * Cordon off the area * Close supervision | 1 | 5 | 5 | Y |
| **6** | While placing concrete | Slips and trips | Improper housekeeping and negligence of the personnel | Fracture, penetrating or puncture injury | 3 | 4 | 12 | * House keeping to be maintained * Re-enforcement placing top and bottom bars are to be tied properly to avoid unbalance while personnel walking over the steel | 1 | 4 | 4 | Y |
| **8** | While placing concrete | Collapse of formwork | Failure in the structural design with respect to the load calculations  Failure in provision of back propping system as per design standards | Fatality, injury of the person and property damage | 3 | 5 | 15 | * Ensure the formwork supplier is to assess the supporting system is adequate according to the design. Certification to be given to Main Contractor prior to the Consultant inspection for concerting. * Ensure a carpenter team must be made available while casting to check the back propping system is not disturbed/ altered | 1 | 5 | 5 | Y |
| **10** | Usage of electrical machineries | Unsafe use of electrical machineries | No proper maintenance of electrical equipments/ machineries  Failure to deploy skilled electricians | Electrocution of personnel | 3 | 4 | 12 | * Periodic check of electrical equipments/ machineries * Electrical connection of power supply/ cable management and arrangements | 1 | 4 | 4 | Y |
| **11** | Concreting on day | Sunstroke | Failure to follow the local and ministerial regulations | Sunburn  Collapse of personnel | 3 | 4 | 12 | * Adequate drinking water supply along with dehydration supplement like ORS… * First Aid facility is made available throughout | 1 | 4 | 4 | Y |
| **12** | Concreting at night | Slips & trips | Failure in providing proper illumination | Personnel injury, fracture | 4 | 4 | 16 | * Proper lighting facilities provision * Approval / NOC for night concreting * Implement HSE concrete pouring checklist | 1 | 4 | 4 | Y |

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| Persons in danger |
| * Workers undertaking the work |
| * Persons passing the site location/ truck routes, e.g. members of the public and persons in the Vehicles. |
| Personal protective equipment |
| * Safety Helmet, Gum Boot, Proper Gloves & Safety Goggles |
| Information, instruction and training |
| * All personnel in the team are to be made aware of the safe systems of work. |
| * Ensure that good house keeping standard is maintained through out. * Training and experience for personnel to use electrical equipments and vibratory equipments. * Educate the personnel to handle chemicals such as concrete… |
| Emergency procedures |
| * Site emergency procedures should make provision for the rescue of individuals from heights. |
| * First-aid facilities should be available to cope with any significant injuries that may arise from the work. |
| Monitoring and review |
| * Work should be monitored by Foreman and charge hand who are trained to ensure that any additional precautions or equipment required are provided. |

**RISK ASSESSMENT COMMITTEE**: Project Manager/ Project Engineer

Safety Manager/ Safety Officer

**Reviewed by:** (Safety Officer) **Approved by:** (Project Manager)

**RISK MATRIX**

**Risk Rating (RR) – Severity x Likelihood**

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| **LIKELIHOOD**  **(PROBABILITY)**  **(P)**  **SEVERITY**  **(IMPACT)**  **(S)** | | **Rare**  Remote possibility (once every 3 years or more)  **1** | **Unlikely**  Could happen but rare (typically once in a year)  **2** | **Possible**  Could happen occasionally (on average quarterly)  **3** | **Likely**  Could happen often (on average once a month or more)  **4** | **Almost certain**  Could happen frequently (once a week or more)  **5** |
| **Insignificant** | **1** | **Low**  **1** | **Low**  **2** | **Low**  **3** | **Low**  **4** | **Medium**  **5** |
| **Minor** | **2** | **Low**  **2** | **Low**  **4** | **Medium**  **6** | **Medium**  **8** | **Medium**  **10** |
| **Moderate** | **3** | **Low**  **3** | **Medium**  **6** | **Medium**  **9** | **Medium**  **12** | **High**  **15** |
| **Significant** | **4** | **Low**  **4** | **Medium**  **8** | **Medium**  **12** | **High**  **16** | **High**  **20** |
| **Major** | **5** | **Medium**  **5** | **Medium**  **10** | **High**  **15** | **High**  **20** | **High**  **25** |

**RISK BASED CONTROL PLAN**

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| --- | --- |
| **RISK LEVEL** | **ACTION AND TIMESCALE** |
| **1-4**  **Low** | Quick, easy controls should be implemented immediately and further action planned for when resources permit. Monitoring required ensuring controls are maintained. Manage through routine procedures. Go for economic improvements where possible. Incident report must be completed. |
| **5-12**  **Medium** | Aim to reduce risks but costs of prevention may be limited. Undertake a risk assessment of the situation / task and implement the appropriate actions. Actions should have a timescale and should be monitored. Where the risk involves work in progress undertake a risk assessment as soon as possible to ensure the safety of the situation or task. **Work should not start until the risk is reduced to an acceptable level.** Considerable resources may have to be allocated. Contact your Manager and Risk Manager by telephone about the actions that should be taken to reduce the risk/s. incident report must be completed. Incident must be added to service risk register. |
| **15-25**  **High** | **Do not commence the activity until** a risk assessment has been completed to ensure the safety of the situation or task. If it is not possible to reduce or eliminate the risk even with unlimited resources, work must remain prohibited. Inform your relevant Director, your Manager and the Risk Manager immediately by telephone. Incident report must be completed. Incident must be added to service risk register. |