**ACTIVITY :**  **CIVIL JOBS**

* Objective : - Safe work procedure for civil job for optimum performance
* Scope : - Blast Furnace Accessories
* Ref. : -
* Responsibility : - Engineer In charge and workmen on job

PPE –s to be used :

* Helmet, Safety shoes, hand gloves, full body harness and complete sealed goggle (As per the condition of the job), earplug during the usage of drill machine, compressor and concrete mixer.
* Work No 1 : Excavation of soil/rock
* Work No 2 : Concreting job
* Work No 3 : Plastering job
* Work No 4 : Breaking job
* Work No 5 : Plumbing job
* Work No 6 : False ceiling job
* Work No 7 : Carpentry job
* Work No 8 : Aluminium doors/windows job
* Work No 9 : Cleaning of tanks
* Work No 10 : Tiling job
* Work No 11 : Tile polishing job
* Work No 12 : Tree cutting, Bush cutting
* Work No 13 : Masonry job
* Work No 14 : Pavers job
* Work No 15 : Anti termite treatment

Aspect – Impact

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| --- | --- |
| Dust Generation | Air pollution |
| Scrap generation | Resource Depletion |
| Fire | Air Pollution –SP42 |

Hazards identified

1. Fall of object on leg / body( bricks, tiles, phawda, shovel, pick axe, hammer, tools, etc)
2. Fall of person from different heights – from platform, openings of shuttering, platform with out hand railing, non usage of safety harness,
3. Impact of material & machinery (slinged items, moving machineries, trucks, hydra, materials, mixer pan, material carrying lift, etc)
4. Entanglement.
5. Slip from height.
6. Piercing of rods.( reinforcement rod, shikanja, barricading rods, shuttering post / angles etc)

Physical hazard:

1. Dust inhalation.
2. Fire.
3. Gas poisoning in gas cleaning area.
4. Burning in hot metal handling area.
5. Slippage of hose from air pressure clamps.
6. Noise of compressor, drill machine, etc.
7. Snake bite

Electrical:

1. Electrical shock.

1. Work permit should be taken from related department like Electrical (Shutdown), Instrumentation & Production (Work Permit) after ensuring all the related safety as per indicated by the procedure and engineer at the site. Once job is completed same should be returned to user department after normalizing the site.

Work No 1 : Excavation of soil/rock

1. Barricade the working area with wooden planks / sheeting’s before start of work if the barricade is removed in between, same should be put back immediately. Barricading should be carried out in such a way that clear passage is left for persons who wants to move in the area. Barricading materials should be placed below 1.2 mtr height to avoid impact on eyes
2. Use red indicator light while working on roads
3. Ensure that “WORK IN PROGRESS” sign board is kept at work place well in advance on the area to be excavated
4. Take electrical shutdown before excavation. Close supervision of electrician is required for excavation work where cables are likely to be there.
5. No two people should carry out the excavation with pickaxe facing in opposite direction.
6. All tools shall be firm with its supports..
7. Proper strutting & shoring should be done incase of loose soil and benching method to be followed for deep excavation

H. While excavating in loose soil various techniques of cutting of steps are to

be adopted . This will increase the size of pit in plan than actual

requirement but will prevent collapse of trench sides deep into the pit. The soil

will collapse & will remain on steps rather then falling directly on person who is

doing excavation in pit.

1. Excavated earth material should be moved slightly away from trench top edges, though required later for backfilling.
2. If any cable is found during work, ensure that no machinery is used for excavation, bring the same to attention of engineer in charge or electrical engg. Excavate that portion manually with care.
3. Tools used for excavation i.e. pickaxe etc. should strictly have wooden handles, as

there is possibility of encountering electric underground cables, which can cause

electric shock.

1. If excavation is being done by JCB, back -hoe make sure that no person should be with in the swing of the boom.
2. Pneumatic breakers are to be used by trained persons only with all hoses properly clamped and hoses are secured with additional chains at either side of hose machine condition should be good. Wear safety boot while using breaker and stay slightly away during drilling to avoid slip of drill machine in hard rock / uneven surfaces.

N. Insulation tapes are to be provided for pneumatic breaker to avoid electric shock.

O. Once the job is completed, remove all display boards, lights etc.

P. Ensure that backfilling is done properly and no small stones being left on the

ground.

Q. Return the work permit to the engineer in charge.

Work No 2 : Concreting job

1. Barricade the working area before start of work.
2. Ensure that concrete mixer is having proper guards for moving parts.
3. For electrically operated mixer and vibrator, ensure certification from electrical department periodically. Only trained people should operate the mixer & vibrator.
4. Proper steel scaffolding should be made during concreting if working above 6 feet height.
5. Ensure that wooden planks (secured properly) are laid above reinforcement while concreting over reinforcement to avoid slip hazard.
6. Do not wear loose garments.
7. Cement and other materials left over must be properly stored in close covers on it to reduce dust generation.
8. All waste cement must be properly diluted with water before discharge to environment.
9. ‘Shikanjas’ ( local word) used for tightening shuttering of beams & columns (used to prevent bulging of concrete during vibration -compaction) should not be used. Instead of this bolt & nut arrangement should be practiced.
10. While working at height above 2.0m for casting slab. MS railing of at least 90 cm height should be provided to prevent workmen & material fall.
11. R.C.C. cantilever projection of minimum 500 mm should be provided all round

the floor beams to increase working space.

L. Free pointed ends of steel rods in slabs are to be tied with distribution bar &

should be bent downwards as they may lead to accident by trip & subsequent

piercing of rods.

M. Never step on any centering & shuttering unless & until it is checked by small

jerk.

N. One person should stand safely below slab level to be cast (away from its

coverage) to notice minute movements of shuttering material while doing

concreting job above it. If any movement is observed same to be brought to notice

of Engineer incharge & work to be stopped.

O. All “mundas” should be rigidly braced by horizontally tied

1. All “mundas” are to be checked for base fixity on all sides firmly to the floor or

ground on which it is supported.

Q. All telescopic jacks should be periodically greased; standard cylindrical rods

for locking system should be used. Do not use tor steel rods for locking the

telescopic jacks as they may hit the persons moving in the area..

R. After dismantling of shuttering, , nails are to be removed & kept at its

designated place so as to maintain good house keeping & to create safe

working place for all.

S. Plywood or wooden planks should be placed on steel reinforcement for easy

movement of workmen during concreting job.

1. All cut out openings in slab should be barricaded.

U. Hammers with wooden handles should be used

**Work No 3 : Plastering job**

1. Barricade the working area before start of work.
2. Use proper MS scaffolding with H frames and secure it with proper bracings wherever required
3. Use full body harness / safety belt if working above 6 ft height.
4. Proper lighting should be there if working in dark room or during night time.
5. No bamboo scaffolding should be used.
6. Use work in progress boards.

Work No 4 : Breaking job

1. Skilled person should operate pneumatic breaker.
2. Ensure the hose used is without cut and is certified as tested.
3. Clamping should be done properly to the hose before start of the work. Tie with extra wire to avoid slippage of hose.
4. Compressor operator should inform starting and stopping operation to the breaker operator to avoid slippage of hose.
5. While breaking, breaker must ensure low dust generation by spraying water on earth surface to be attended.
6. Reinforcement bars should not be left in unsafe condition and need to be barricaded properly. Debris should be disposed immediately after completion of job.

Work No 5 : Plumbing job

1. Take work permit from concerned department before starting the excavation job.
2. Take pump shutdown from electrical if required.
3. Proper cutting & bending tools to be used during the work.
4. Joining solutions should be handled with care and should avoid their contact with the eyes. Such solutions should be properly tagged and kept at designated area.
5. Only certified power tools should be used while drilling, cutting, etc.
6. Ladders should be certified from competent person.
7. Wooden ladders are not allowed.

Work No 6 : False Ceiling job

1. Proper scaffolding should be used while working at height.
2. Barricade the area strongly.
3. Take work permit from concerned department and electrical shutdown of all equipments mounted on the ceiling like fans .
4. Use dust mask while working and safety goggles while drilling.
5. Use certified power tools with proper sockets for drilling holes, cutting, etc.
6. Ensure that material is handled with care at height to prevent fall of material on the ground.
7. Ladders should be certified from competent person
8. Wooden ladders are not allowed.

Work No 7 : Carpentry job

1. MS scaffolding, Aluminum ladder or H frame should be used while working at height.
2. Take work permit from concerned department and electrical shutdown of all equipments mounted on the ceiling like fans.
3. Use dust mask while working and safety goggles while drilling.
4. Use certified power tools with proper sockets for drilling holes, cutting, etc.
5. Use nose masks during varnishing and polishing.
6. Hand gloves and goggles to be used while cutting glass.
7. Ensure that material is handled with care at height to prevent fall of material on the ground.
8. Varnish and polish solutions should be handled with care and should avoid their contact with the eyes. Such solutions should be properly tagged and kept at designated area.

Work No 8 : Aluminium doors & windows job

1. Take work permit from concerned department before the start of work.
2. Cutting tools used should be electrically certified and should have proper safety guards.
3. Drill machine used should be certified & safety goggles to be used while drilling.
4. Ensure wire of the equipment is laid in such way to avoid entanglement of other users.
5. No naked, cut pieces, joint wires are allowed.
6. Hand gloves to be used while handling Aluminium sheets to prevent cutting of hand due to sharp edges.
7. Aluminum scrap pieces should be disposed in proper bins.

Work No 9 : Cleaning of Tanks

1. Take work permit from concerned department before the start of work.
2. Proper scaffolding should be used while working at overhead tanks.
3. Ensure all water valves are closed prior to start of work.
4. Water should be drained out by using pumps or manually.
5. Open manhole covers for proper ventilation and barricade the area.
6. One person should stand outside the tank.
7. Use flexible ladder while working.
8. Ensure closing of manhole covers after completion of work.

Work No 10 : Tiling job

1. Take work permit from concerned department before the start of work.
2. All moving equipments are to be tested and got certified from electrical department, prior to work.
3. Tile cutting machine should have safety guard for wheel.
4. No naked, cut pieces, joint wires are allowed.
5. While cutting tiles, use safety goggles, hand gloves, etc.
6. Working area should be barricaded.
7. While chipping the floor, use safety goggles.
8. Do not keep instruments in scattered condition and work within the assigned area.
9. Use ear plug while cutting the tiles.
10. All debris, tiles, cut pieces of tiles should be removed after completion of the job and good housekeeping is to be maintained.

Work No 10 : Tiles polishing job

1. Take work permit from concerned department before the start of work.
2. Polishing machine should be tested and certified from electrical and mechanical department.
3. Only certified plug tops to be used as per safety standards.
4. Use ear plug while polishing the tiles.
5. Keep “WORK IN PROGRESS” board to prevent slip hazard.
6. Debris generated while polishing should be collected in container and disposed properly.

Work No 12 : Tree cutting, Bush cutting

1. Take work permit from concerned department.
2. Care to be taken for snake bite
3. Inspect the area of work for any electrical cables/live wires and get permit the permit signed by electrical engineer.
4. Electrical shutdown should be taken from electrical department while cutting the trees below overhead electricity lines.
5. Safety belts should be used while working at height and hooks should be locked properly.
6. Surrounding area should be barricaded as per height of the tree.
7. Cutting procedure is to be decided upon the surrounding area.
8. Cut trees should be stacked properly and disposed off. Move the knife with out hitting body of him self and others working nearby.
9. While cutting small bushes, first take a stick and disturb the area so that any poisonous/non poisonous reptiles hidden in the area will run away and the site will become safe for work.
10. Use necessary safety PPE’s like hand gloves, gumboots, etc.

Work No 12 : Anti- termite treatment

1. For protection use of PPEs like gumboots (with steel toe), hand gloves, safety helmet & safety goggle is mandatory.
2. Chemicals should be mixed using wooden stick or steel rod.

C. Mixing as well as pouring of solution should to be carried out very carefully.

Especially contact of chemical with eyes should be avoided.

1. After completion of job these chemicals should be properly tagged & stacked at their designated place.
2. Use Work instruction [WI/MAINT/12](file:///C:\Users\00007038\Desktop\wi%20New\New%20folder%201\WIMAINT12%20MATERIAL%20HANDLING%20.doc) for shifting the material
3. Refer SP 42 and 44 for general safety

**DO :**

* Use Water to avoid dust generation (Depending upon the area)
* Always make area to be excavation wet to avoid development of dust.

**Amendement Record**

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| **Date** | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
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| --- | --- | --- |
| **Prepared By:**  Area Engineer | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Mechanical Head |
| **Signature** | **Signature:** | **Signature:** |
| **Review Date: 12.12.22** | **Review Date: 12.12.22** | **Review Date: 12.12.22** |