1. **PURPOSE:** Instructions for roof sheet, vertical sheet
2. **SCOPE:** Battery -1 & Battery-2 esp. Coal sheds, office, store, workshop, Screening towers, Conveyor towers, Battery machines, oven-top
3. **RESPONSIBILITY:** Company Engineer, maintenance Fitter and workmen at job
4. **SAFETY PRECAUTIONS:**

* Ensure all Electrical isolation prior to starting work on equipment wherever applicable. Follow documented isolation procedure as per Vedanta approved isolation standards.
* Follow *one man one lock* system and use of LOTO box.
* Work permit is mandatory for any work at height activity
* Check prevailing weather condition before work start and probable change in conditions during the course of work for outdoor height work and review hazard associated with it.
  + High velocity wind
  + Rain or thunderstorm
  + Dew
  + High ambient temperature or height work during summer after noon
* All sheeting roofs are considered as fragile therefore three-layer protection must be used in the form of Crawling ladders/boards, proper fall arrest system and safety net while working on roof sheets.



* The employee working at height must have a valid Height Pass issued after work at height training and medical test.
* Check there is a safe method of getting to and from the work area. If possible temporary scaffolding to be used.
* Safety briefing / Toolbox talk to be carried out and to be documented
* Check and ensure safety of man and equipment before starting operations.
* Make use of fall restraint devices such as short lanyards with harnesses, static lines, retractable lanyards, etc.
* Use of personal fall arrest system (ABC which comprises of **A**nchorage, **B**ody harness & **C**onnecting device) full body harness, lanyards, Nets etc.
* Always know your fall distance and select proper equipment to meet the fall clearance.
  + UNDER 18.5 ft. (5.6m) - always use a Self-Retracting Lifeline.
  + OVER 18 1/2 ft. (5.6m) - a Shock-Absorbing Lanyard or Self-Retracting Lifeline can be used.
* Body harness with Double lanyards should be used to provide continuous anchorage while moving
* Combination of Horizontal life line (HLL) & Vertical lihe line (VLL) to be erected as anchorage for working over roofs.
* Safety net should also be provided at areas where fall from heights above 2.5m is possible & there are no working platforms. Wherever safety nets cannot be installed like coal sheds etc.double life line per person to be used
* Barricading of area below where such sheeting work is in progress by red flags/ work in progress tags. Inform the workers working in nearby areas, display board “Men working at height”.
* Site conditions to be checked for any abnormality.
* Ensure that all sheets are shifted to the required area through designated walkways only.
* While dismantling existing sheets, they should be gently lowered to the ground and not thrown down from top.
* Don’t Walk on old/damaged sheets.
* All unwanted material from the area to be removed before releasing the equipment electrical isolation.
* Follow proper documented procedure for releasing the electrical isolations as per Vedanta approved isolation standards.
* Certified lifting Tools & Tackles to be used for the job. Check for healthiness of the safety belt before use.
* Refer SP44G for more details

1. **PPE to be used :**

* Safety Helmet
* Safety shoes
* Safety Goggles
* Hand gloves
* Dust mask
* Full body harness with short/ long lanyards/ retractable lanyard

1. **Aspect-Impact:**
2. Scrap generation Resource Depletion.
3. Asbestos scrap generation Land Contamination
4. Dust Generation Air Pollution.
5. **Hazards** **identified**
6. Physical Hazard

* Flying of coke dust and fines
* Contact with hot structural parts
* Electrical shock
* High Temperature
* High velocity Wind
* Rain or thunderstorm
* Dew
* Poor visibility

1. Mechanical Hazard

* Impact, Entrapment, Entanglement, Slip, Cut, trip and fall

1. Chemical Hazard: NIL
2. Ergonomical Hazard

* Poor workplace design

1. Health Hazard :

* Inhalation of coal dust
* Inhalation/ exposure to asbestos

1. Human behaviour aspect of operators:

* Alcoholism.
* Casual approach.
* Horse play.
* Non usage of PPE’s
* Improper Housekeeping
* Height Phobia

1. **PROCEDURE**:
2. All new AC sheets used should be non asbestos sheets.
3. Prepare safe work procedure as per site requirement with details of anchorage points, tieing of HLL/ VLL, persons working on roof top, persons working at GL, rescue plan etc.
4. one person to be stationed below for co-ordination and safety actions.
5. Inspect sheets before climbing. For moving over roof, landing to done only on area above purline/ structure.
6. Tie the sheets properly for lifting and lowering For Aluminium/GI sheets put one additional hook at top side of sheet while lifting /lowering . The sheets have to be lifted or locked by 1” manila rope with both side U- clamps.
7. Ensure proper locking and tightening of hooks with structure and sheets.
8. All holes for sheet fixing should be drilled/ punched to appropriate size. Secure all sheets with J bolts/self-tapping screws of proper size
9. Overlapping of sheets to be done for one and half corrugations.
10. Modified washers for getting more bearing area to be used. To prevent sheets damage during strong winds.
11. After completion of work remove all dismantled sheets, J hooks and tools from site and release the work permit after informing shift in-charge.

* After completion of work remove all dismantled sheets, J hooks and tools from site and release the work permit after informing shift in-charge.
* Asbestos sheets removed & broken pieces to collected & shifted at proper locations for disposal.(Stores)

1. **REFERENCES: SP44G, Manuals of tools**
2. **7. RECORDS:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Record No.** | **Record Title** | **Maintained by** | **Soft/Hard form** | **Retention Time** |
| 4. | HI/32 | Hazard Identification | IMS | Soft | 1 Yr. |
| 5. | RA/32 | Risk Assessment | IMS | Soft | 1 Yr. |
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| **Date** |  | **Manual Section Ref. & Para** | **Brief details of Revision** | **New Rev.** |
| 13-08-2022 |  | Header | Company logo & Document no. | 08 |
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| **Prepared By:**  Head Mechanical Maintenance, Battery 1- MCD | **Reviewed & Issued By:**  Management Representative | **Approved By:**  Head Mechanical Maintenance MCD |
| **Signature:** | **Signature:** | **Signature:** |
| **Review Date: 13.08.2022** | **Review Date: 13.08.2022** | **Review Date: 13.08.2022** |