

# METHOD STATEMENT FOR HVAC WORKS



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 **RealTime**  
Integrated Infratech Pvt Ltd.

# **METHOD STATEMENT FOR HVAC WORKS**

**REALTIME INTEGRATED  
INFRA TECH PVT LTD**

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## **INTRODUCTION**

We are an enterprise established in 2010. Within a decade we have become a revered HVAC company in South India. As a leading provider of HVAC services, we are specialized in HVAC solutions and process cooling. Integrity, commitment, and quality-oriented solutions are our USP. Our team of professionals works under a client-focused approach to make sure that our services meet the requirements. We use advanced technology to give excellent services.

Over the last decade, we have built a sturdy client base. Let the project be of any size; our team dedicates individual focus to complete the work within the time and budget. We know that the future world will differ from today's. Our visionary team is all equipped to see the future more and to work with clients to design for this future and for today's needs. By adhering to regular after sales support, we save the client's valuable time and resources.

## **SCOPE**

This method statement describes/ defines the procedures involved in Installation of HVAC System such as Duct & Duct Accessories to confirm proper operation.

## **PURPOSE**

Purpose of this procedure is to define the sequence and methodology for all critical installation activity pertaining to HVAC air distribution system with scope of work, applicable standards, and drawings

## **TOOLS AND EQUIPMENT**

Common tools required to carry out this project are: - ladders, drill machines, grinders and toolbox contain general tools like:

Hammer, Duct sealant gun, Measuring Tape, Nylon Rope, Rivet gun, Spanner set, Screw Drivers, Spirit Level Indicators, Markers, Scissors, Grip Payer, and other tools not referred here may be indicated under appropriate section of this document.

## **MATERIAL HANDLING**

All construction material specification together with the relevant certificates shall be submitted to client/consultant for approval prior to proceed with the material order.

Need to identify a safe and clean designated storage shelter if the material needs to be stored at site prior to installation on its final location. Material need to be properly stacked on pallets and preserved as per the manufacturer instructions.

Check, manufacturer protection is sufficient for the storage and transportation and if required, provide additional protection. Ensure the protection is not disturbed until the material opened for inspection / installation.

Any flammable material and chemicals shall be stored as instructed by Material Safety Data Sheets. Material safety data sheet (MSDS) shall be kept at easily accessible location of the storage spaces containing chemical solvents, powders etc.

All the material shall be preserved based on the manufacturer recommendation. Material inspection shall be carried out by QC personnel.

Defective & nonconformity material will be stored separately in a designated area. These materials shall be immediately replaced or repaired/disposed by respective Department as per the instruction provided by Procurement division.

## **SITE PLANNING AND PREPARATION**

### **ACCESS ROUTES & STORAGE SPACE**

Site management shall decide temporary material storage area and control the safe accessible route to the storage area for entry / exit.

Storage area shall be barricaded and labelled properly. Entry into this area shall be restricted to authorized persons only. Critical material handling activity shall be done in presence of Modular safety officer and the concerned supervisor.

### **WORKING AT HEIGHT**

Site shall arrange necessary scaffolding as per the request. Scaffolding shall be inspected & tagged prior to release for use. Dismantling and modifications also shall be done by as per site requests.

Any work at more than 2-meter height shall be in accordance with Yard HSE procedure and at least below notes shall be educated / reminded to the personnel who all are working at height.

- All personnel shall be secured with safety harness wherever the possibilities of a fall exist
- Make sure safety harness rope is securely anchored; safety harness should be double hook type and tie to be two different locations.
- Always anchor safety harness rope to a fixed object never to moving load or to equipment that may move.
- Barricade the area
- Ensure that area below you are clear of all unnecessary material
- Never use scaffolding and ladders which have not been inspected.
- Handrails for personnel shall be installed on all scaffolds guardrails and toe boards must be installed.
- Scaffolds must be fully planked, properly supported, and properly tied off
- Rolling scaffolds shall not be removed with anyone on it. Remove or secure all tools and material before moving
- Wheels of rolling scaffolds must be locked
- Access ladders must be provided on scaffolds and securely lashed.

## **RESPONSIBILITIES**

This project's fulltime key roles and responsibilities are indicated in below sections. There are many other important positions directly or indirectly involves in this project may not be appearing in the list below.

### **PROJECT MANAGER**

Project manager responsibilities pertaining to projects are:

- Collaboration with Division Manager and with PMCs/Client, effectively communicate project deliverables & objectives to team members in a timely and clear, Liaise with project stakeholders on an on-going basis.

- Arrange meetings internally and with client/consultant representatives
- Manage, update, and distribute project scope of work and project documents as relevant.
- Liaise closely with functional department in-charges to ensure all aspects of the project are controlled and executed in a safe and timely manner.
- Identify and resolve issues and conflicts within the project team, Determine the frequency and content of status reports from the project team, analyse results and troubleshoot problem areas, proactively manage changes in project scope, identify potential crises, devise contingency plans and approval of all project documents.
- Liaise with client/consultant for day to day business related to the execution of Modular scope of work
- Where required, negotiate with other department managers for the acquisition of required personnel from within the company, Delegate tasks and responsibilities to appropriate personnel.

### **PROJECT ENGINEER**

Project engineers are responsible for directing and managing all activities associated with the project from initiation to close out. He is directly reporting and discussing the project plans, issues, progress etc. with Project manager. His responsibilities include but not limited to,

- Review, monitor and control project progress and schedule with planning, monitoring and control team
- Hold regular progress status review meetings with Client and project personnel
- Promote QHSE at all activities of projects
- Review, monitor and control project costs and variation with the help of Commercial department
- Follow up and updating the construction schedule to the project manager.
- Follow up and update the status of material availability and status of material procurement.
- Manage all authority requirement and approval required at site.
- Manage supervisors/foreman by giving target and monitor the performance.
- Verify as built drawing provided by supervisor/foreman in site, send to engineering upon verification for the final documentation.

### **SUPERVISOR / FOREMAN**

Supervisor shall be solely responsible for scheduling day-to-day activities on the site related to his trade. He ensures that the work is executed as per project specifications and project quality requirements.

- Follow up and updating the construction schedule and report to the project engineer.
- Supervisor is responsible for managing their work together with the other discipline teams and supporting project engineer to ensure that the project is delivered on time with the approved quality standards.
- Update the status of material availability to project engineer.
- Responsible for resolving any quality issues raised during QC site inspections and assists Quality Control department to ensure the timely closeout of the comments raised.



- To make sure the maintenance access on the installation as per site condition requirement.
- Prepare as built drawing as per installation and submit to project engineer for verification.

### **HSE ADVISOR / SAFETY OFFICER**

Safety officers shall be responsible for HSE requirement and procedures implementation. Ensuring the usage of proper tools and equipment to maintain safety and periodically verifies certifications of equipment and their adherence to safety regulations.

- Reporting of any unsafe work or stopping work that does not comply with HSE procedures. Advise for Health & Safety requirements and monitor the Hazard controls implemented on site based on Risk assessment.
- Advices Health & Safety requirements and shall monitor the Hazard controls are implemented on site as per the Method Statement / Risk assessment.
- Ensure that LUX levels are monitored to ensure that sufficient lighting is being provided at work site. Ensure adequate ventilation in the work area. Ensure proper housekeeping at every shift change in the work area.
- Inform regarding the heavy lifts, radiography, pressure tests etc. to the workforce well in advance to provide a safe working atmosphere. Ensure that necessary precautionary measures are implemented at the planning stage of any night shift activities.

## **MATERIAL RECEIVING INSPECTIONS**

### **PROCURED ITEMS INSPECTION**

- Purchased products are verified through proper inspection methods. On case to case basis, inspection will be carried out based on supplier delivery note or MODULAR order confirmation.
- Material receiving Inspection shall be done complying with requirements.
- Material inspection shall take place against purchase order, drawings, Data sheet, any other reference documents, and specifications.
- Material that does not meet requirements for the characteristics inspected shall be rejected.
- Any non-compliance, non-conformity shall be intimated to the Supplier/ Manufacturer and appropriate Corrective and Preventive actions should be taken without any delay.
- No material is released for fabrication/installation or into storage facility until all the required inspections/tests are completed and the certificates/test reports applicable/required are reviewed and accepted by all parties

## **EXECUTION METHODOLOGY**

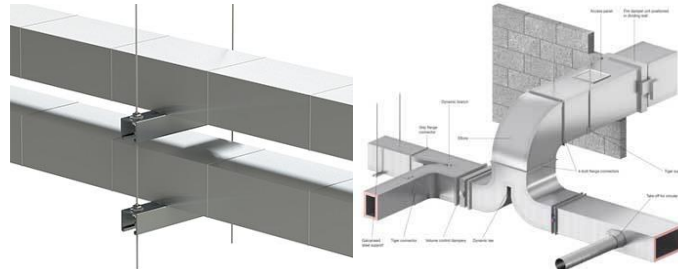
### **DUCTING**

#### **SUPPORT INSTALLATION**

- Support shall be fabricated and installed with proper guidance and manufactures recommendation.



- All the accessories and fitting shall be used as per the SMACNA standard and project requirement.
- Duct support shall be installed as per the details in approved ducting layout and manufacture recommendation.
- All material shall be inspected and verified prior to install.
- Material shall be free from physical damage, impurities, and proper cleaning to be done.



- Mark the location of support as per the approved drawing.
- Install the fabricated support as per the approved layout.
- Distance between hangers shall be as per approved drawing based on SMACNA standard.

TABLE 4-1M  
RECTANGULAR DUCT HANGERS  
MINIMUM SIZE

MAXIMUM HALF OF DUCT PERIMETER	Pair at 3 m Spacing		Pair at 2.4 m Spacing		Pair at 1.5 m Spacing		Pair at 1.2 m Spacing	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 = 760	25.4 × 0.85	3.4	25.4 × 0.85	3.4	25.4 × 0.85	2.7	25.4 × 0.85	2.7
P/2 = 1830	25.4 × 1.31	9.5	25.4 × 1.00	6.4	25.4 × 0.85	6.4	25.4 × 0.85	6.4
P/2 = 2440	25.4 × 1.61	9.5	25.4 × 1.31	9.5	25.4 × 1.00	9.5	25.4 × 0.85	6.4
P/2 = 3050	38.1 × 1.61	12.7	25.4 × 1.61	9.5	25.4 × 1.31	9.5	25.4 × 1.00	6.4
P/2 = 4270	38.1 × 1.61	12.7	38.1 × 1.61	12.7	25.4 × 1.61	9.5	25.4 × 1.31	9.5
P/2 = 4880	Not Given	12.7	38.1 × 1.61	12.7	25.4 × 1.61	9.5	25.4 × 1.61	9.5
P/2 = More	SPECIAL ANALYSIS REQUIRED							
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:					SINGLE HANGER MAXIMUM ALLOWABLE LOAD			
					STRAP		WIRE OR ROD (Dia.)	
25.4 × 1.31, 1.00, 0.85 mm - one 6.4 bolt					25.4 × 0.85 - 118 Kg		2.7 - 36 Kg	
25.4 × 1.61 mm - two 6.4 bolts					25.4 × 1.00 - 145 Kg		3.4 - 54 Kg	
38.1 × 1.61 mm - two 9.5 bolts					25.4 × 1.31 - 191 Kg		4.1 - 73 Kg	
Two bolts must be in series, not side by side.					25.4 × 1.61 - 318 Kg		6.4 - 122 Kg	
					38.1 × 1.61 - 500 Kg		9.5 - 308 Kg	
							12.7 - 567 Kg	
							15.9 - 907 Kg	
							19.1 - 1360 Kg	

**DUCT INSTALLATION**

- All receiving inspection shall be completed as per approved drawing and specification.
- All ductwork, fittings and equipment shall be cleaned before erection and ensured for cleanliness.
- All manufacturer protective covers on equipment shall be left in place if possible, during erection.
- All open ends of HVAC Ductwork shall be covered with dust blind to avoid construction debris deposit.
- All ductwork thickness, dimensions and reinforcement shall be verified as per standard, Scope of work and approved drawing.
- Provide acoustic insulation to prevent noise transmission and improve comfort wherever required.

- Install the fabricated ducts on the support as per the approved layout.
- Duct shall be connected to equipment by using flexible connection.
- Joint the duct by proper method (Ex: G clamp, cleat, and nut bolt) and proper gaskets.
- Duct seams shall be sealed with proper sealant.
- All joints and seams in ductwork and casing are to be thoroughly sealed to prevent air leakage.
- Flexible duct shall not be assembled to obtain longer runs.

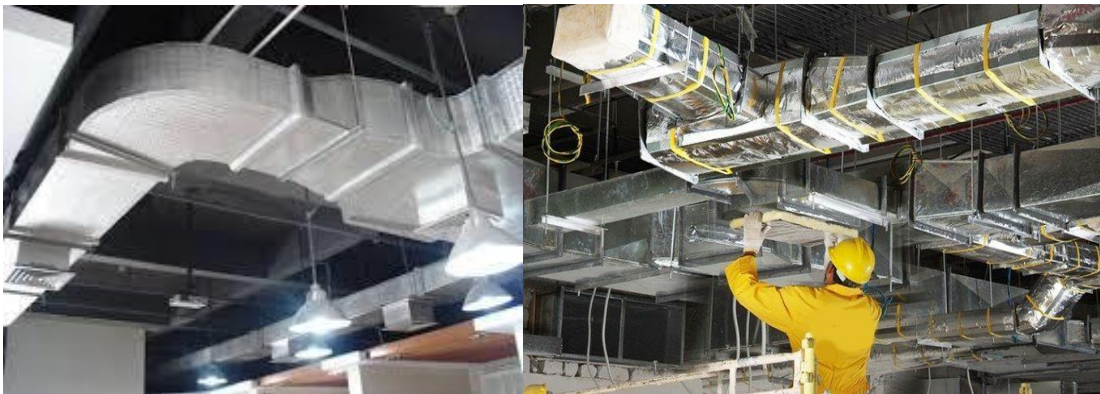


- Install all inline accessories including all dampers (Fire Dampers, Volume Control Dampers, Pressure relief dampers etc.) heaters, sound attenuator as per the approved shop drawings and manufacturer's instructions.
- Ensure that the ductwork and damper flange are carefully matched, with the specified sealing material used during installation.
- Check damper for damage caused by mishandling or poor transportation. Visually inspect the integrity of the dampers: blades, frames, corner brackets, interconnecting blade linkages, bearings and pivots, operational drives or quadrants and blade seals.
- Check the blade operation by opening and closing the blade(s) via the manually operated quadrant drive spindle/shaft. Clamps, pliers, or other mechanical attachments may be required.
- Heating elements shall be installed on removable terminal plate to permit easy withdrawal for inspection, cleaning and replacing. An isolator and hazard warning sign, which clearly indicates the operating voltage, shall be fitted immediately adjacent to the heater access opening.
- The heating coil shall be clearly marked with an arrow to indicate direction of airflow and another arrow to indicate mounting position.
- Ensure that all devices are installed with airflows and pressures conforming to the test data as detailed in the design documents.
- All installations must be carried out in accordance with the relevant specifications and AFC drawing requirements.
- Supports shall be according to the detail drawings and specification. Apply approved gasket to mating flanges and position damper. Bolt damper using Manufacturer instructed sizes of fasteners.
- The damper must be installed square and true. Any distortion of the casing may cause jamming during operation.

- Wherever the damper and heater are installed above a ceiling or any location, an inspection/access hatch shall be provided for the accessibility for tests, service and/or maintenance.
- On wall and floor crossing, damper shall be installed by using sleeve.

## INSTALLATION OF INSULATION

- Clean the area of duct to be insulated to make it dust free, apply thinner / cleaner wherever necessary to make the area grease free.
- Proper inspection to be completed on duct.
- Joint, routing, all inline items installation to be verified and confirmed.
- Duct leak test to be completed if it required.
- Install insulation fastener on the duct surface using approved adhesive. Allow 8 to 10 hours for the adhesive to cure.
- Distance between fastener to be maintained as per drawing and manufacturer recommendation.



- Install approved type insulation with aluminium foil finish for rectangular ducts.
- Secure the insulation slabs with self-locking washers. Trim all projecting pins flush with the insulation. Seal all the joints and visible sections of insulation with aluminium foil tape.
- Using the proper clothing and foster, finishing coat shall be done if required.
- After foster application allow the duct to get dry as per manufacturer recommendation.
- Install Grills, Diffusers, registers, and Louvers as per the approved shop drawings and manufacturer's instructions up on the clearance.



- Ensure access doors are provided wherever necessary as per the approved drawings

## **CLADDING OF WEATHER-EXPOSED DUCTS**

If cladding is to be installed covering the duct insulation, instead of securing the insulation with pins/washers which might cause lumps / impressions on the cladding sheets, the insulation slabs shall be adhered on to the duct surface using approved adhesive.

Install corner angles covering the corners of duct insulation as per approved drawing. Secure the corner angles with aluminium foil tape at regular intervals.

Fabricate & install cladding sheet of approved material and thickness covering the insulated ducts (weather-exposed) and secure with rivets.

Flow direction shall be marked on the duct as per approved drawing.

## **AIR CONDITION EQUIPMENT INSTALLATION (FCU, AHU & FAHU)**

### **PRE-INSTALLATION CHECK**

Before any material to be installed, ensure that these have been inspected at site and have been approved at least by QC personnel and as required by the approved Inspection and Test Plan.

- Inspect all materials and verify that they are undamaged
- Ensure that, all materials specifications are Approved by Client
- Ensure that, all installations procedures are in accordance with the Manufacturer Instructions and or in accordance with the project specifications.
- Ensure type approval certificates are available as required and in accordance with the regulatory requirements and specifications.
- Choose a dry storage site that is reasonably level and sturdy to prevent undue stress and damage.
- Do not remove protective caps from duct and pipe connections until ready to connect ducting.
- Cover entire unit with tarpaulin or heavy-duty plastic coverall. Secure cover with adequate tie Downs
- Inspect the area where works to be carried to ensure that the area is in a condition to commence the installation.
- Follow approved drawings, project specifications and Manufacturer Instructions for the installation.

### **INSTALLATION**

- Only a qualified technician should be allowed to carry out installation.
- Where necessary, prepare detailed layout for unit installation and obtain customers approval.
- Clean the area where the unit is to be installed.
- Remove shipping spacers wherever applicable.
- Install unit on the foundation/support Provide vibration dampers underneath the unit to suit the operating weight as required.
- Provide adequate clearance for unit service access Provide sufficient clearance around the condenser coil for proper heat transfer.
- Install all necessary wiring and necessary components in accordance with the manufacturer instructions and job requirements.

- Install a trapped condensate drain line at unit drain connection, with insulation and cladding as per scope and specification.
- Drain line to be tested as per proposed leak test / hydro test procedure.
- Connect all ducts with the unit. Provide flexible connector between the unit and the ducts.
- Tags to be provided for unit, pipes, Cables, ducts etc.

### **IDENTIFICATION OF EQUIPMENT**

- Ensure the equipment is tagged according to the project tagging philosophy
- Suitable warning notice shall be installed on the Packaged Air-Conditioning unit for controlling unauthorized operation

### **INSPECTION AND TESTING**

- Ensure that all the installations and hook up connections are as per the approved shop drawings and manufacturer recommendations.
- Ensure that the installed Package units & accessories are free from damages
- Ensure the maintenance accessibility.
- Ensure necessary inspection, functional tests and commissioning activities performed according to the Mechanical completion inspection test and start-up / commissioning procedure.

### **FRESH AIR AND EXHAUST FANS**

#### **PRE-INSTALLATION CHECKS**

Before any material to be installed, ensure that these have been inspected at site and have been approved as required by the approved Inspection & Test Plan.

- Inspect all materials and verify that they are undamaged
- Ensure that, all materials specifications are Approved by Client
- Ensure that, all installations procedures are in accordance with the Manufacturer Instructions and or in accordance with the project specifications.
- Ensure all certificates are available as required and in accordance with the regulatory requirements and specifications.
- Choose a dry storage site that is reasonably level and sturdy to prevent undue stress and damage.
- Cover entire unit with tarpaulin or heavy-duty plastic coverall. Secure cover with adequate tie Downs
- Inspect the area where works to be carried to ensure that the area is in a condition to commence the installation.
- Follow approved drawings, project specifications and Manufacturer Instructions for the installation.

### **INSTALLATION**

- Only a qualified technician should be allowed to carry out installation.
- Where necessary, prepare detailed layout for unit installation and obtain customers approval.
- Clean the area where the unit is to be installed.
- Inspect the foundations/support for its correctness against approved drawings

- Install unit on the foundation/support as per AFC drawing. Provide vibration pad underneath the unit to suit the operating weight as per manufacturer recommendation.
- Provide adequate clearance for unit service access.
- Install all necessary wiring and necessary components in accordance with the manufacturer instructions and job requirements.
- Connect associated ducting with the unit. Provide flexible connector between the unit and the ducts if required.
- Tags with description to be provided for unit, cables, ducts etc.

### **INSPECTION AND TESTING**

- Ensure that all the installations are as per the approved shop drawings.
- Ensure that the installed fan unit is free from damages.
- Ensure that the connections to the fan as per the approved shop drawings.
- Ensure that the installed accessories are free from damages.
- Ensure that all the accessories are installed as per the approved drawing and as per manufactures instructions.
- Ensure the maintenance accessibility.
- Ensure all other functional tests according to the Mechanical completion inspection test and start-up / commissioning procedure.
- Each fan shall be mechanically run tested at designed speed for a minimum period of 60 minutes. The measured parameter shall be recorded. Air performance data shall be documented.
- As a minimum, following measurements shall be recorded for each fan:
- Flow rate, static pressure, and fan speed. Electrical load for all fans shall be recorded at full fan load.

### **PIPING**

- Prior to alignment of pipes for welding & Brazing each length of pipe will be inspected thoroughly to ensure that no visible defects are present. Check the materials as per the standard and specification and get approval from the consultant/ Employer representative.
- The EDGE ends of each pipe and the area which is adjacent shall be thoroughly cleaned from the rust, paint oil scale or the other foreign materials, which are harmful for welding and brazing alloy heat build-up quality
- Each length of pipe shall be thoroughly cleaned by blowing air from both ends of the pipe. Protect and cover the openings of pipes with suitable cap or polyethylene sheet to avoid any foreign material entering
- Ensure all both pipe ends are clean without any dirt or oil deposits before inserting to the socket, which is End socket fittings, pressing firmly to reach stopper tip from inside socket start levelling until its firmed follow procedure below
- For proper aligning external pipe clamps or jigs shall be used and (tack welding) or initial application of brazing alloy to hold the alignment. When above is not possible, tack welding shall be used for proper alignment.



- Ensure all Brazing alloy rods are suitable to use particularly for wall thickness of the copper pipe and its diameter size of the copper pipe to insure proper usage as per manufacturers data and recommendations
- Pre-Heating temperature must be 700 to 750°C (COPPER PIPES). Heat the assembled joints between Pipe and End fittings evenly on all sides while heating builds up encircling direction either left to right depends on the welder
- Apply solder or brazing Alloy rod to the mouth of the fittings when reaches the correct temperature the solder alloy will flow freely into the joints. Briefly reapply the blowtorch and wipe off any excess flux residues
- Brazing alloy of piping shall be performed in accordance with the approved WPS based on project specifications and applicable codes for BS standards; hence there is no welding or brazing procedure specification on the project mentioned. Contractors ability and expertise will be incorporated on this method statement based on welding code standards and according to manufacturer's recommendation

## **PAINTING**

- The paint system would be emulsion paint for internal but to be approved by the Engineer. The surface to be painted when prepared one coat of paint to be applied as primer. Curing would be made by drying until 4 hours is attained prior to the succeeding coat to be applied.
- Two coats of Stucco would be applied after the primer has reached its curing period. But each coat shall have an interval time of 4 hours for curing. Before the application of second coat stucco sanding would be done for cleaning and removing of splattered, blemishes and stains on the painted surface.
- Then two coats of final paint would be applied as per the approved colour.
- For working at height, fixed and movable scaffolding would be erected as per area requirements. Scaffolding when erected shall be inspected with Safety officer prior to usage. Operatives will be inductive before working at site. Pre-start meeting would be conducted before the start of painting activities and tool box meeting would be regularly conducted by safety officer for all concern operatives.
- Inspection Request to be submitted for checking and approval of the Engineer.

## **ENVIRONMENTAL, SAFETY AND HEALTH**

### **RISK ASSESSMENT**

Risks, at each stage are evaluated, utilizing the matrices inserted in Appendix-2 as to determine the level of significance in terms of likelihood of occurrence and severity of hazard based on the allocated numerical values.

### **LIST OF TYPICAL TASK INVOLVES RISK**

- Hot works
- Bolt Tensioning and Torqueing
- House Keeping (General)
- Pressure test using air.
- Equipment Installations
- Leak Testing



- Manual Handling
- Material handling using forklifts
- Pneumatic Testing
- Portable Electric Hand Tools
- Working at Heights, scaffoldings, ladders
- Working in Fabrication Areas (General)

## **TOOLBOX TALK**

Modular Supervisors and foremen shall carry out regular and scheduled toolbox talks. Subjects for these talks are pre-determined and planned as per Toolbox Talk subjects.

Toolbox talks are also used prior to the commencement of critical activities to reinforce policies and procedures specific to the activity, communicating 'lessons learnt' from hazards / incidents and reviewing Job Hazard Analysis. Safety officer shall conduct toolbox talks for complex activities which require extra precautions. Attendance at toolbox talks is closely monitored to ensure all employees receive regular and appropriate.

## **PERSONAL COMMITMENT**

- I shall always wear my PPE.
- I shall do my best to prevent pollution damage to the environment.
- I shall use the welfare facilities provided for me.
- I shall protect the safety of my fellow workers.
- If I work safely each day, I shall go home each day.

## **PERSONAL PROTECTIVE EQUIPMENT**

Following are the basic personal protective equipment (PPE) those are always used during construction activities to ensure safety of the personnel at construction site:

**Protective Clothing:** Protective clothing protects the body of the construction staff from hazardous substance.

**Helmet:** The most important part of the human body is the head. It needs utmost protection which is provided by a hard-plastic helmet.

**Safety Shoes:** Maximum of the working space is occupied with machinery, construction materials which are made of hard metal and which make it clumsy for construction staff to walk around. Safety shoes ensure that nothing happens to the feet while working or walking at site.

**Safety Hand gloves:** Different types of hand gloves are provided. All these are used in operations wherein it becomes imperative to protect one's hands. Some of the gloves provided are heat resistant gloves to work on hot surface, cotton gloves for normal operation, welding gloves, chemical gloves etc.

**Goggles:** Eyes are the most sensitive part of the human body and in daily operations chances are extremely high for having an eye injury. Protective glass or goggles are used for eye protection, whereas welding goggles are used for welding operation which protects the eyes from high intensity spark.

**Earmuff/plug:** Noisy construction environment is extremely high for human ears to bear. Even few minutes of exposure can lead to headache, irritation and sometimes partial or full hearing loss. An earmuff or ear plug is used during construction activities which dampens the noise to a bearable decibel value.

**Safety harness:** To avoid a fall from heightened area, safety harness is used. Safety harness is donned by the operator at one end and tied at a strong point on the other end.

**Face mask:** Working on insulation surface, painting or cleaning involves minor hazardous particles which are harmful for human body if inhaled directly. To avoid this, face mask is provided which acts as shield from hazardous particle.



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