METHOD STATEMENT

FOR

Electrical Installations

Project Name:	

REVISION HISTORY	ISSUE DATE	DESCRIPTION	REVIEW / STATUS

PREPARED BY:	REVIEWED BY:	APPROVED BY:
QA QC ENGINEER	**FM ENGINEER**	**FM MANAGER**

Table of Contents

1. Purpose

The purpose of generating this method statement is to define the procedure step by step to implement the correct practices for the Installation of MOB, SMDB, and DB, MCC & CB through the guidelines contained herein to ensure that the job execution complies with specifications and serves the intended function to a satisfactory level where applicable in the project building.

2. Scope

This method statement covers all processes related to the Installation of MOB, SMDB, DB, and MCC & CB as the following:

2.1 Installation of Cable, MOB, SMDB, DB, MCC & CB.

This procedure is to be read in conjunction with the relevant ITP outlining the responsibility and the quality verification to be performed by various parties.

3. Definitions

POP :	Project Quality Plan
PSP :	Project Safety Plan
QCP :	Quality Control Procedure
ITP :	Inspection Test Plan
QA/QC:	Quality Assurance I Quality Control Engineer.
SK:	Store Keeper.
WIR :	Inspection and Test Request
MIR :	Material Verification Record.

MOB: Main Distribution Board

SMDB: Sub Main Distribution Board

DB: Distribution Board.

MCC: Motor Control Center

CB: Capacitor Bank - Power factor corrector-.

4. Responsibilities:

Responsibilities for ensuring that the steps in this procedure shall be carried out are specified at relevant steps in the procedure:

1. Project Manager
2. Construction manager
3. QA/QC Engineer
4. Site Engineer
5. HSE officer
6. SK

4.1. Project Manager

- The project manager is the overall responsible for the project in terms of work execution, safety, planning & quality. The Project Manager will maintain the planning progress and coordination of works with the main contractor.
- The work progress shall be carried out as per the planned program and all the equipment required to execute the works shall be available and in good condition as per the project planned.
- Specific attention is paid to all safety measures and quality control in coordination with Safety Engineer and QA/QC Engineer and in line with PSP and PQP.

4.2. Construction Manager

- The construction Manager is responsible to supervise and control the work on site.
- Coordinating with QA/QC Engineer and site Team and foremen for all activities on site.
- Control and sign all WIRs before issuing to Consultant approval.

4.3. Site Engineer

- The method of statement to the system shall be implemented according to the Consultant project specifications and approved shop drawings.

- Provision of all necessary information and distribution of responsibilities to his Construction team.
- The work progress shall be monitored following the planned work program and he will provide reports to his superiors.
- The constant coordination with the Safety Engineer to ensure that the works are carried out in a safe working atmosphere.
- The constant coordination with the QA/QC Engineer for any works to be carried out and initiate the Inspection for the finished works.
- He will ensure the implementation of any request that might be raised by the Consultant.
- Efficient daily progress shall be obtained for all the equipment and manpower.
- He will engage in the work and check the same against the daily report received from the Foremen.
- The passage of all the revised information to the Foremen and ensure that it's being carried out properly.

4.4. QA/QC Engineer

- The monitoring of executions of works at the site should be as per the approved shop drawings and project specifications.
- Ensure WIRs and MIRs are being raised for activities promptly and inspected by the Consultant.
- Check and ensure that all activities I work done I completed before offering for consultant inspection.
- He will follow and carried out all the relevant tests as per project specifications.
- Obtain the required clearance before the Consultant's inspections.
- Should acquire any necessary civil works clearances and coordination.
- Coordinate with the site construction team.
- One who will assist the Consultant Engineer I Inspector during the inspection?

4.5. Site Foreman

- The carrying-out of work and the proper distribution of all the available resources in coordination with the Site Engineer daily.
- Daily reports of the works are achieved and coordinated for the future planning with the Site Engineer.
- Incorporate all the QA/QC and Safety requirements as requested by the concerned Engineer.
- Meeting with any type of unforeseen incident or requirement and reporting the same to the Site Engineer immediately.

4.6. Safety Officer

- The implementation of all safety measures following the HSE plan and that the whole workforce is aware of its proper implementation.
- The implementation of safety measures is adequate to maintain a safe working environment at the work
- Activity.
- Inspection of all the site activities and training personnel in accident prevention and its proper reporting to the Construction Manager and the Project Manager.
- The site is maintained in a clean and tidy manner.
- Ensure only trained people shall operate the power tools.
- Ensure all concerned personnel shall use PPE and all other items as required.
- Ensure adequate lighting is provided in the working area at night time.
- Ensure high-risk elevated areas are provided are barricade tape, safety nets, and provided with ladders.
- Ensure service area/inspection area openings are provided with barricade tape and safety nets.
- Ensure safe access to site work at all times.

4.7. Store Keeper (SK)

- Responsible for overall Store operations in making sure to store the material delivery to the site and keep it in a suitable area that will keep the material safe from rusty and damage.
- One who will acknowledge the receiving of materials at the site in coordination with QA/QC and the concerned Engineer.

5. Equipment

- MDBs, SMBs, FDBs, MCC & CBs shall be in line with approved material submittal and as per the approved shop drawing.
- Portable Hand Tools.
- Portable Drilling Machine.
- Grinding Machine.
- Insulation Testing Equipment.
- Digital Multi-meter.
- Measuring Tape.
- Ladder/ Scaffolding.
- Safety requirements tools such as safety shoes, safety helmet, safety glasses, fluorescent vest, and safety gloves to ensure the maximum ability of safe work and a dust mask when required.

6. Procedures of installation Switchgears

6.1. Safety

- Ensure only trained/ Authorised & licensed persons only shall operate the power tools.
- Ensure that a Temporary live cable management plan shall develop and implement.
- Necessary PPE to be worn while working in energized circuits.
- Ensure adequate lighting is provided in the working area at night time and if inside the building area to be well illuminated.
- Safe lifting and shifting of L V switchgear panels and their related hazards and risks shall be identified.
- Ensure service area/work area openings are provided with barricade tape, safety nets, and warning signage to be provided (Danger: Low Voltage).
- Ensure LOTO procedure is followed and implement comprehensive logout & tag out during the execution of work.
- An emergency response plan & procedure shall be developed and established as per the site condition during the execution of the activity.
- Ensure that training cards issues as to identify the power tools operatives.
- Ensure that not to shift any material or tools required, through pedestrian access by hand. Mechanical aids shall be used.
- PTW to be applied and obtained to start work on the required area.
- Calibrated Instruments are only to be used.

6.2. Work Sequence and Methodology

- Check all material delivered to the site is inspected properly by QA/QC Engineer and check if it is stored properly as per the manufacturer's recommendations.
- MIR shall be raised for the inspection of materials received at the site by the Sub-contractor QA/QC Engineer to the Consultant Engineer.
- Strict supervision and guidance of the concerned Supervisors Foremen I Engineers.
- Work shall be carried out by the site staff under
- The Sub-contractor QA/QC Engineer shall check all the installations as per the Installation Checklist.
- WIR shall be prepared by the Sub-contractor QA/QC Engineer and will be submitted to the Consultant for their inspection and approval.
- Sub-contractor QA/QC Engineer shall coordinate with other contractors and arrange inspection for installation to the Consultant Engineer.
- MEP QA/QC Engineer is responsible for all installation activities for getting the work inspected and approved by the Consultant Engineer.

6.3. Handling and Storage

On receipt of MDBs, SMDBs, FDBs, MCCs, CBs, and accessories at the site, necessary precautions shall be taken for unloading, shifting, and storage, as follows:

- Material shall be stored in a covered dry space at all times.
- All materials received at the site shall be inspected and ensured that the materials are as per approved material submittal.
- Any discrepancies, damage, etc... Found will be notified and reported for f further action.
- The site Engineer has to ensure that all panelboards used at the site are free from any damage or deformity of any kind. Any minor damages observed shall be repaired suitably and in case the repairs could not be done properly, the panel boards are to be sent to the assembler for rectification after all formalities are carried on.

6.4. General Installation Procedure

- Ensure the work area is ready and safe to start the installation of Ensure that the work area is ready and safe to start the installation of MDBs, SMDBs, FDBs, MCCs, CBs, and accessories
- Ensure the installation of MDBs, SMDBs, FDBs, MCCs, CBs & accessories. Carried out following manufacturer's installation recommendations, the requirement of applicable standards, and following recognized industrial practices and specified in project specification to ensure that installation complies with requirements.
- Before starting the installation, refer to the approved shop drawings related to the area of installation and ensure that required materials are available at the site as per approved material submittals
- Ensure the materials are stored properly and there is no mark of damage or deformity of any kind before issuing the material from the site store. All materials and accessories should also be free of dust, scale, or oil.
- Ensure that the issued materials are of approved specifications/submittals and as per the requirement of
- The area shop drawings. (I.e., Make Size, Model & Type, etc.).

6.5. Installation Procedure for MCC, CB & MOB

- Installation works shall be carried out only concerning approved shop drawings of the latest revision.
- All components of MCC, CB &MOB such as relays, and fuses. CTs, meters, etc. shall be verified against the approved material submittal.
- Ensure the floor surface is ready with base frames grouted to install the switchgear.
- A minimum clearance of 800 mm shall be maintained at the rear side of the panel so that easy access for the termination of cables and other maintenance works can be carried out.

- Panelboards shall be installed serially and with Level Verticality following the Manufacturer's recommendations, approved site layout, and as per site requirement.
- Check cabinet interconnections, bus bar connections, and control wire connections between the cubicles after proper alignment of the section cubical as per the manufacturer's drawing and approved shop drawing.
- All knockouts made on the panel covers shall be filed and provided with grommets to avoid sharp edges and unused knockouts shall be covered.
- The connection of bus bar trunking with all panelboards shall be done rigidly with proper supports.
- The cable bending radius should be less than 8 times the cable diameter in line with the Manufacturer's recommendation.
- Cable pulling, termination & crimping shall be done as per the cables method statement.
- Termination of cables shall be done using approved material submittal for cable glands and lugs. Glanding and connections should be done only by competent technicians and electricians under the supervision of an electrical site Engineer.
- All panel boards and switch gears shall be provided with proper earthing connections as per approved shop drawings.
- Manufacturer recommendations are to be followed for all relay, timer, and other breaker current settings, as per the total connected loads and the discrimination study of the system.
- Identification labels of the approved type shall be fixed on all panel boards.
- Coordinate with the Main Contractor and ensure the provision of chequer plates on the open trenches inside the LV Room and Electrical rooms.
- Ensure that all cable entries and other openings of Electrical/LV Room, Wall/Floor are carried out with properly approved sealant.
- The manufacturer's representative to verify the site installations and provide acceptance of same before Energization of Panelboards after obtaining clearance from the Site Engineer.
- Raise (WIR) for installation of Panel Boards along with glanding and termination to a consultant.

6.6. Installation Procedure for SMDB&FDB

- Manufacturers represent at life to verify the site installations and provide acceptance of same before Energization of Panelboards after obtaining clearance from Site Engineer.
- Installation works shall be carried out only following approved shop drawings of the latest revision.
- Ensure all civil and finishing works are completed and the area is released for the area of Installation and cleared by the civil section to proceed with Distribution Board installations. Also, ensure that the work area is clean and safe to undertake activities.
- Ensure the wall surface is ready to install the Distribution Boards.

- Clearances are to be maintained between the SMDBs and FDBs. As specified in the approved shop drawings.
- The height of the Distribution Boards shall be maintained as per approved shop drawings so that easy access for termination of cables and other maintenance works can be carried out.
- Connection of cable trays/Cable trunking with all Distribution Boards shall be done rigidly with proper supports.
- All knockouts made on the panel covers shall be filed and provided with grommets to avoid sharp edges and unused knockouts shall be covered. All cable entries shall be closed and sealed adequately.
- Termination of cables shall be done using approved cable glands and lugs glanding and connections should be done by only competent technician's electricians as per the approved shop drawing.
- SMDBs and FDBs shall be provided with proper earthing connections as per approved shop drawings.
- Doors of SMDBs and FDBs are to be earthed with a flexible connection.
- Identification labels of approved types shall be fixed on SMDBs and FDBs.
- Raise (WIR) for installation of SMDBs and FDBs along with glanding and termination to Consultant