

# METHOD STATEMENT FOR INSTALLATION OF MCC PANEL AND ACCESSORIES

## RED LINE NORTH ELEVATED AND AT GRADE

### Revision and Issue Records

Review History


Document No.	Revision	Title
M002-RLR-ELE-MES-00014	1	MS for Installation of MCC Panel and Accessories

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## 1 Definitions and Abbreviations:

Table 1: Definitions and Abbreviations

Abbreviation	Definition
BS	British Standard
HS	Health, and Safety
ITP	Inspection and Test Plan
MSDS	Material Safety Data Sheet
PMC	Project Management Consultant
QA/QC	Quality Assurance / Quality Control
QCS	Qatar Construction Specification
SONO	Statement of No Objection
PPE	Personal Protective Equipment
RLN-EAG	Red Line North Elevated and At Grade

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Abbreviation	Definition
RLR JV	Rizzani de Eccher, Lotte and Redco - Joint Venture
DB	Distribution Board
MCC	Motor Control Center
ATS	Automatic Transfer Switch
MCB	Motorized Circuit Breaker
SMDB	Sub Main Distribution board
MDB	Main Distribution Board
ITP	Inspection Test Plan
FAT	Factory Acceptance Test
MS	Method Statement
QR	Qatar Rail
QCS-2014	Qatar Construction Specification

## 2 Purpose:

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The purpose of the method statement is to describe the procedure for material delivery inspection, installation and inspection of the MCC-Panels at Stations. The Intent of this report is to explain, the methods to be adopted to ensure works conducted on site are in compliance with approved design & material approvals as per Project specifications.

## 3 Scope of Method Statement:

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The scope of application of this method statement is the Installation and inspection of MCC – Panels for RedLine North Elevated & At Grade. (Chainage: 25+285 to Chainage: 31+950, Section of the RLN-EAG Project.

## 4 Work Execution:

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### 4.1 General Supplied Items:

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#### 4.1.1 Personnel:

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1	MEP Construction Manager	<ul style="list-style-type: none"> <li>Delivering the overall works in a safe and timely manner, ensuring conformance with the approved design.</li> <li>Leading the team of engineers and surveyors, guiding them in the delivery of the works.</li> <li>Verifying that work done is in accordance with requirements of contract.</li> <li>Ensuring the quality standards set for the work are achieved and the work team adhere to the QA/QC and HS requirements of the contract.</li> </ul>
2	Systems Assurance Engineer	<ul style="list-style-type: none"> <li>Establish the system assurance process.</li> <li>Manage the RAMS team and EMC team in delivering the system assurance submissions.</li> </ul> <p>Liaise with the System Assurance Manager for all safety and RAM related activities respectively.</p>
3	Project/Site Engineer	<ul style="list-style-type: none"> <li>Ensuring that the works are being carried out in accordance with contract requirements and this Method Statement.</li> <li>Management onsite to ensure that the team carries out the works in time with the delivery schedule.</li> <li>Implementation of and adherence of the team to the QA/QC and H&amp;S policies and procedure.</li> </ul>
3	QA/QC Manager	<ul style="list-style-type: none"> <li>The preparation of the company's QA manual control and supervision of all amendments and revisions</li> <li>Monitor all quality related activities on the project</li> <li>Perform all internal and external audits on behalf of the company's management</li> <li>Preparation, monitoring, training of project staff on method statements, and control of material on site.</li> </ul>
4	QA/QC Engineer	<ul style="list-style-type: none"> <li>The QA/QC Engineer is the overall responsible for the implementations of this procedure and will carry out the material inspection to ensure that materials received on site are approved materials.</li> <li>He will be conducting surveillance and inspection duties at various stages of the project delivery to ensure compliance to contract requirements and to QA / QC requirements.</li> <li>He will monitor the installation works according to the approved drawing &amp; method statement.</li> <li>He will coordinate with the Supervisory Consultant to carry out inspection/testing of the completed works.</li> <li>The QA/QC Engineer is responsible for the detail application of this procedure for the inspection and testing, to coordinate with the Construction Manager and Site Engineer for the inspection of on-going work.</li> </ul>
5	Surveyor	<ul style="list-style-type: none"> <li>Setting out all planned works.</li> </ul>

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		<ul style="list-style-type: none"> <li>Monitoring the works being carried out to ensure they are at the correct levels and measurements.</li> <li>Maintaining documents relevant to alignment and height control.</li> </ul>
6	Document Controller	<ul style="list-style-type: none"> <li>Documenting, distributing and maintaining data in the prescribed format.</li> <li>Making the necessary data available as requested by the team or the client.</li> </ul>
7	HS Inspector	<ul style="list-style-type: none"> <li><b>Identify</b> HS requirements, non-compliance or otherwise by conducting both formal and informal audits and communicate said to relevant site management</li> <li><b>Advise</b> site management on HS substandard acts and HS substandard conditions on a continuous basis and record said.</li> <li><b>Coordinate</b> and record action by site management as identified and advised.</li> <li><b>Verify</b> actions taken by site management , record and report accordingly</li> <li><b>Conduct</b> relevant HS administrative functions and additional tasks as directed by HS Management.</li> </ul>
8	Supervision Engineer	<ul style="list-style-type: none"> <li>Checking the compliance of works to the design.</li> <li>Carrying out comprehensive supervision of all construction works.</li> <li>Confirming that the work executed complies with the approved design and be responsible for checking the construction works.</li> </ul>

All of the above will individually be responsible for a safe and healthy operational environment consideration of all the workers in their team related to the execution of their duties and any other personnel. Furthermore one group of workers is planned for execution of installation of MCC-Panels This group will perform all activities. The group will have following labour profile.

#### Labours/Workers

No.	Description	No.	Description
1	Electrical Supervisor	3	Electrician
2	Electrical Forman	4	Labours

#### 4.1.2 Equipment and tools :

The typical construction equipment requirements is as listed below, and will be used for Installation activities at site.

#### General Tools used for this activity

- PPE for all staff and labour
- Measuring tapes and setting out markers
- Electrician Tool Box with all tools
- Spirit Level
- Nylon Rope
- Screwdriver set
- Maker/Whitener and Line Marker
- Mechanical Winches
- Cable Cutter

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- Cable Lugs Punch
- Cable Glands
- Cable Lugs
- Heat Shrink Sleeve
- Identification Tags
- Insulation Tape
- Flat file
- Hammer
- Barrier Warning Tape & Portable Emergency Lamp
- Heat Gun
- Multimeter
- Megger Meter
- Mobile Scaffolding (if Required)
- Man Lift (if Required)
- Ladders (if Required)
- Drilling Machine

Note: All the powered tools shall be suitable for use of 220V - 240V power Supply.

The above tools and equipment shall be checked for operational suitability before each shift of commencement of works including, but not limited, to safety and operational compliance. The same shall be executed for all small tools and miscellaneous items.

Equipment may be substituted subject to availability and actual requirements on the day.

The type and quantities of equipment are subject to change to suit the site requirements and to meet the construction program.

#### 4.1.3 Material

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- a) The MCC Panels shall be as per approved Material Submittal.
- b) MCC to be installed as per verified Shop drawing and load Schedule
- c) All components of the panel such as MCCB, MCB, Relays, Fuses, Meters, CTs, Contractors, Terminals, etc. shall be verified against the approved panel drawings for correct rating and size.
- d) Panels should have 15 % spare circuit breakers above their initial requirements.
- e) Glanding of incoming and outgoing cable shall be as per typical details.
- f) All wiring materials and installations shall confirm to the requirements of NFPA 70 and NFPA 130.

#### 4.1.4 Handling and Storing of Materials

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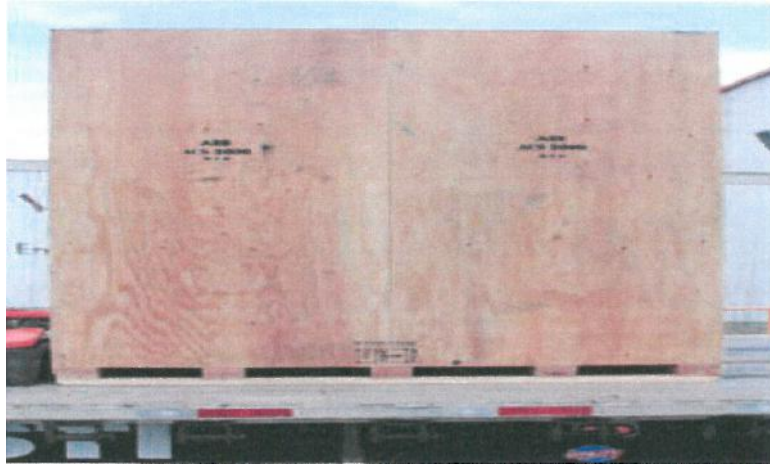
MCC as standard are shipped in shipping splits of up to three sections. The width of shipping splits depends on the type of equipment installed and the width of the individual sections.

#### 4.1.5 Receiving

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1. Before unloading inspect each MCC component and/or its packaging for evidence of damage incurred during shipment.
2. If there is any evidence the equipment has been damaged or mishandled, a qualified technician should perform a complete inspection of both the interior and exterior of the equipment.

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Sample figure 1: MCC Panel with shipping pallets

#### 4.1.6 Unloading and Moving MCC Components

1. The following precautions should be taken when moving an MCC with a crane or hoist:
2. Select rigging lengths to compensate for any unequal weight distribution and to maintain the motor control centre in an upright position.
3. Ensure the load rating of the lifting device is sufficient to handle the load safely.
4. When moving the sections or shipping splits, keep them vertical at all times.
5. MCC sections and shipping splits usually have a high Centre of gravity. To improve stability while moving them to the installation site, leave the sections or shipping splits secured to the shipping skid.
6. Do not allow the angle between the lifting cables and vertical to exceed 45°
7. Do not pass ropes or cables through lifting brackets. Use only slings with safety hooks or shackles.
8. Never lift an MCC above an area where personnel are located.
9. Unload MCC sections or shipping splits either by crane or forklift and place them on a flat surface.



Sample figure 2: Overhead lifting industrial control panel with lifting angle

#### 4.1.7 Storage

1. A motor control centre should be stored in a clean dry space.
2. Motor control centres and units should be stored where they are not subject to mechanical damage.

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3. If the motor control centre is to be stored for any length of time, prior to installation, restore the packing for protection during that period.
4. If the packing is removed, cover the top and openings of the equipment during the construction period to protect them against dust and debris.
5. If the equipment is to be stored in a cool or damp area, do not completely cover the equipment, but provide heat to prevent condensation of moisture in the equipment.
6. If the control centre has been ordered with space heaters, connect to a temporary feed for heat. A simple method of heating the motor control centre when space heaters are not ordered is to place a standard 120V/15W lamp inside the bottom of each vertical section.
7. Any scratches suffered from shipping and handling should be touched up to prevent rusting.



Sample figure 3: Storage of MCC Panel

## 4.2 Site Execution

### 4.2.1 Program

Installation of MCC-Panels is expected to be performed starting **MAY**-2017. Detail schedule of Installation activity will be provided in the weekly update of the 3-weeks look ahead construction schedule.

### 4.2.2 Pre-requisites

The following checks and confirmation shall be carried out prior to start the work:

1. Documents required for execution of the construction work are of the latest issued "IFC"(issued for construction) drawings.
2. Installation of the MCC Panels shall be executed in accordance with approved technical drawings & approved material.
3. Skilled manpower required for carrying out the installation work.
4. Make sure before installing the MCC Panel and connections, that the visual dimensional & quantitative checks have been carried out properly and that the equipment fully complies with the drawings and Approved Material Submittal.
5. Plan ahead and make sure that all containment to be accessible for future maintenance purpose.

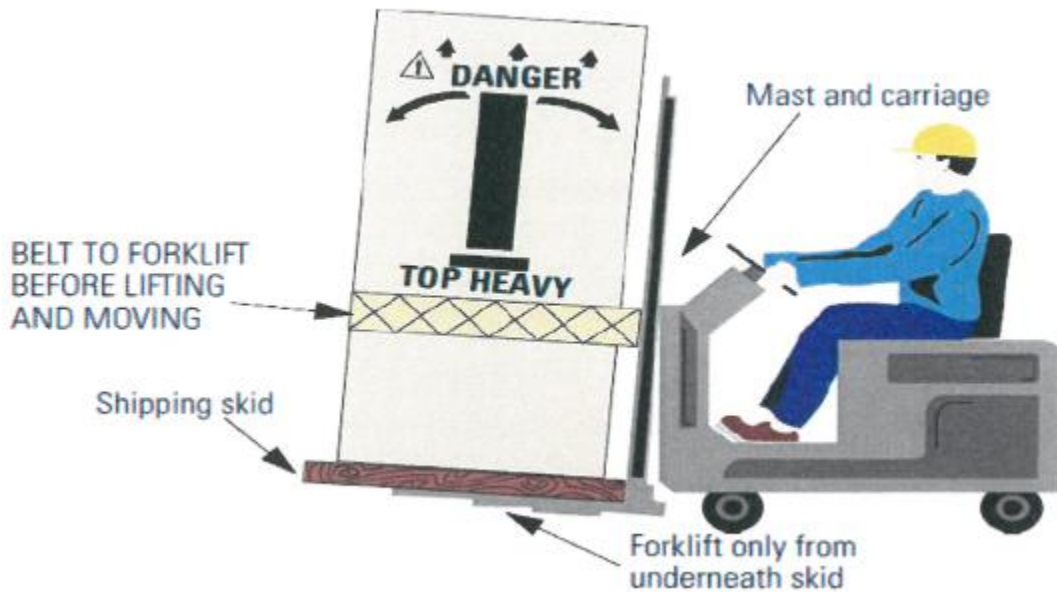
### 4.2.3 Mobilization to Site

The following precautions should be taken when moving an MCC with a forklift:

1. Make sure the load is properly balanced on the forks.

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2. Place protective material between the MCC and forklift to prevent bending and scratching.
3. Securely strap the MCC to the forklift to prevent shifting or tipping
4. Excessive speeds and sudden starts, stops, and turns must be avoided when handling the MCC.
5. Lift the MCC only high enough to clear obstructions on the floor.
6. Take care to avoid collisions with structures, other equipment, or personnel when moving the MCC. Please refer to figure - 4.
7. Never lift an MCC above an area where personnel are located.
8. If fork lifter cannot be deployed on site to the clearance issue. Then use manual pallet with conditions described. Please refer to figure - 5.



Sample Figure 4: Forklifting a MCC Panel



Sample figure 5: Transport with Pallet Jack Warning

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#### 4.2.4 Pre - Installation Procedure

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1. Ensure that the work area is ready and safe to start the installation of MCC Panel and accessories.
2. Ensure the installation of MCC Panel & accessories carried out in accordance with manufacturer's installation recommendations, requirement of applicable standards and in accordance with recognized industrial practices and specified in project specification.
3. Prior to start the installation, refer to the approved shop drawings related to the area of installation and ensure that required materials are available at site as per approved material submittals.
4. Check the approved schematics for each MCC panel and cross reference with installation approved drawings & relevant Electrical Schematics.
5. Ensure the materials are stored properly and there is no mark of damage or deformity of any kind before issuing the material from site store. All materials and accessories should also be free of dust, scale, or oil.
6. Ensure that the issued materials for MCC Panel are of approved specifications / submittals and as per the requirement of the area shop drawings. (I.e. Make Size, Model / Type etc.).
7. Provide copies of type test certificates (FAT).

#### 4.2.5 Site Access

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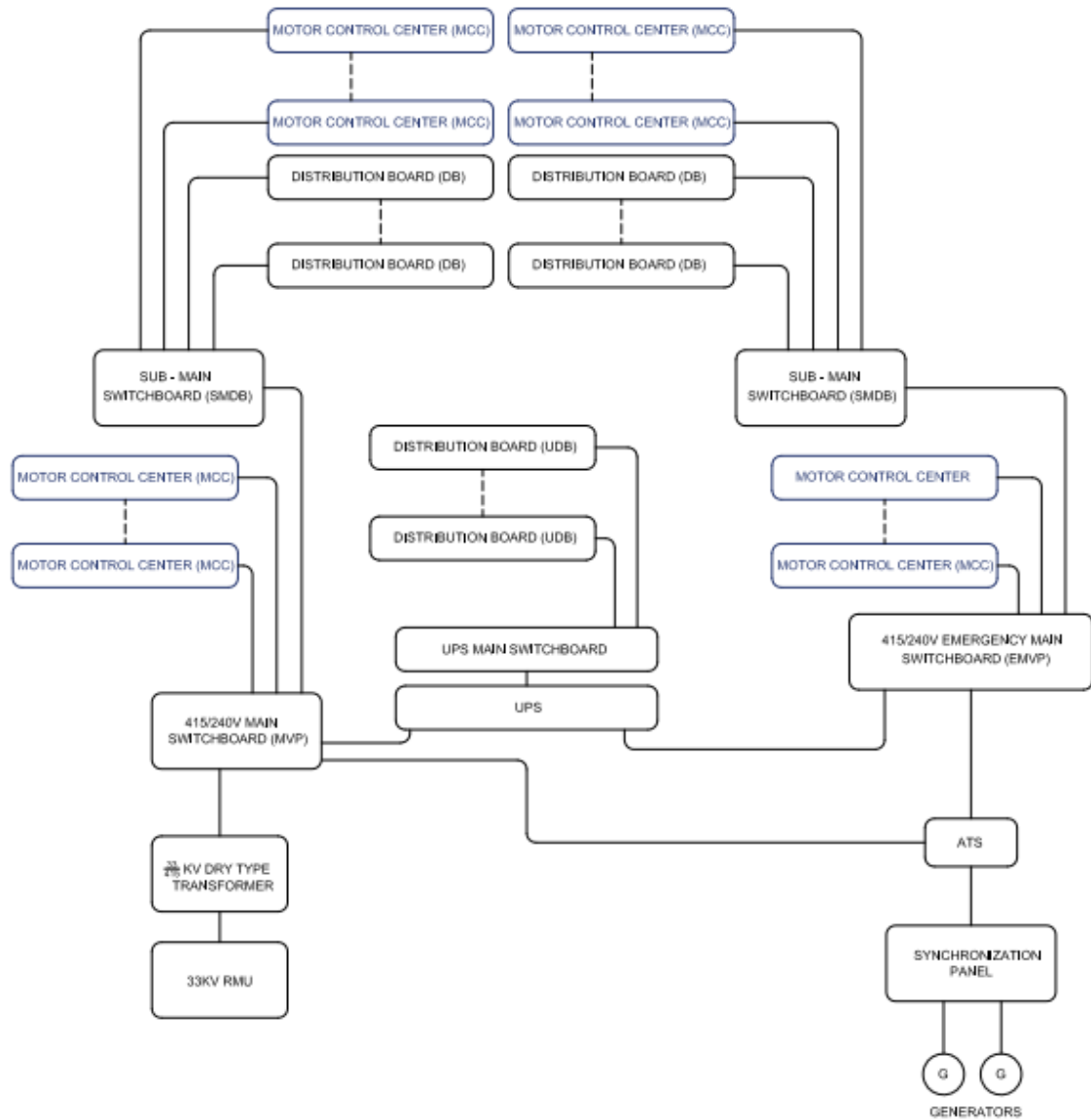
1. Clearly designated walkways must be established to allow persons to access the tunnel/site safely
2. Walkways must be maintained free from obstruction and any debris.
3. Adequate illumination must be provided for access routes and walkways.
4. Signs must be displayed to indicate the routes to be taken by persons, changes in routes must be clearly communicated.
5. All safety measures shall be taken care as per the instruction of HSE Department.

#### 4.2.6 General Procedure for Installation of Motor Control Centre

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1. Shift the panel from stores to the installation spot using fork lift.
2. Remove the packing and ensure that the panel is free from transportation damages.
3. Access around the panel to be checked for future maintenance as per regulations.
4. Provision shall be included to add a vertical section on either end of the line up in the future.

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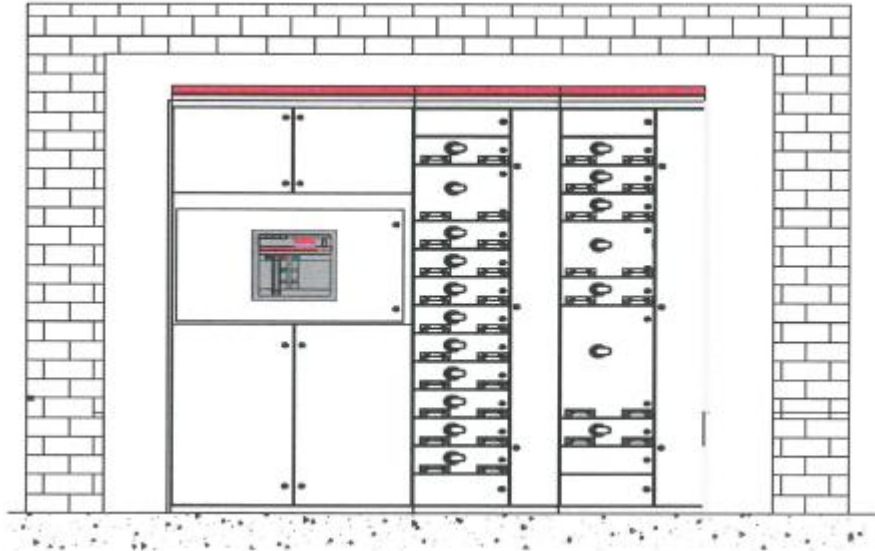
1. Identification of panel and outgoing breaker shall be verified against verified shop drawings.
2. Incoming and Outgoing cables shall be marked/ identified as per verified shop drawings.
3. All components of the panel such as MCCB, MCB, Relays, Fuses, Meters, CTs, Contractors, Terminals, etc. shall be verified against the approved panel drawings for correct rating and size.
4. Any internal connections / modification will be carried out by the manufacturer of the particular switchgear.
5. All breakers (incoming / outgoing) shall be in "OFF" position and to be locked to prevent mishandling.
6. After installation panel shall be properly cleaned and protected to prevent dust and contamination.
7. Inspection request shall be raised for QA/QC verification. Work Inspection Request shall be raised for Consultant's inspection and sign off.

#### 4.2.7 Mounting

1. The motor control centre should be installed in a clean, dry, heated place with good ventilation and it should be readily accessible for scheduled maintenance.
2. A flat, level, concrete surface should be prepared for the mounting site.

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3. Refer to the structure mounting detail layout drawing lead sheet. The coordination between bolts and the MCC should be verified prior to attempting installation.
4. For floor mounted panels, the exact location of the panel and fixing holes to be marked on the concrete plinth provided by main contractor for the installation
5. For wall mounted panels, the exact location of the panel and fixing holes to be marked based on verified shop drawings keeping panel in place and will be fixed in an approved manner.
6. Provide fixing arrangement in an approved manner in the marked location.
7. Install the panel on the plinth, align and fix properly.



Sample Figure 6: Floor Mounted Panel Installation

8. Tighten all the connections as required.
9. Check and ensure adequate space is available for maintenance.

#### 4.2.8 Conduit entry at top

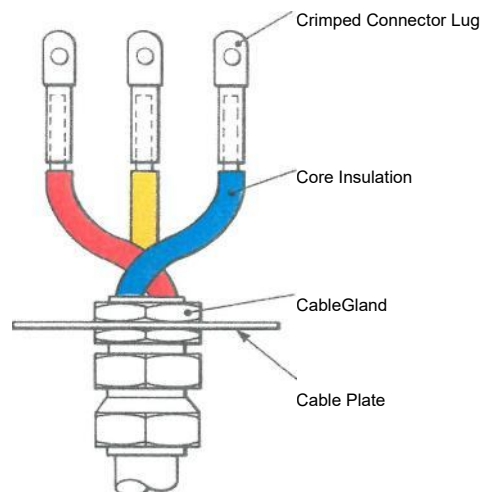
1. All conduit installations should conform to local codes and be compatible with the NEMA environmental rating of the MCC.
2. Remove top plates from structure.
3. Cut conduit entry holes in top plates.
4. Reinstall top plates.
5. Install conduits.
6. All conduits should be bonded to the motor control centre.
7. Install conduit away the ground bus bar to avoid possible damage. Position the cable connection to minimize bending and maintain relative vertical alignment to incoming connections.

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Sample Figure 7: MCC Panel Installation

#### 4.2.9 Glanding & Termination



Sample Figure 8 : Low Voltage Cable Glanding & Termination

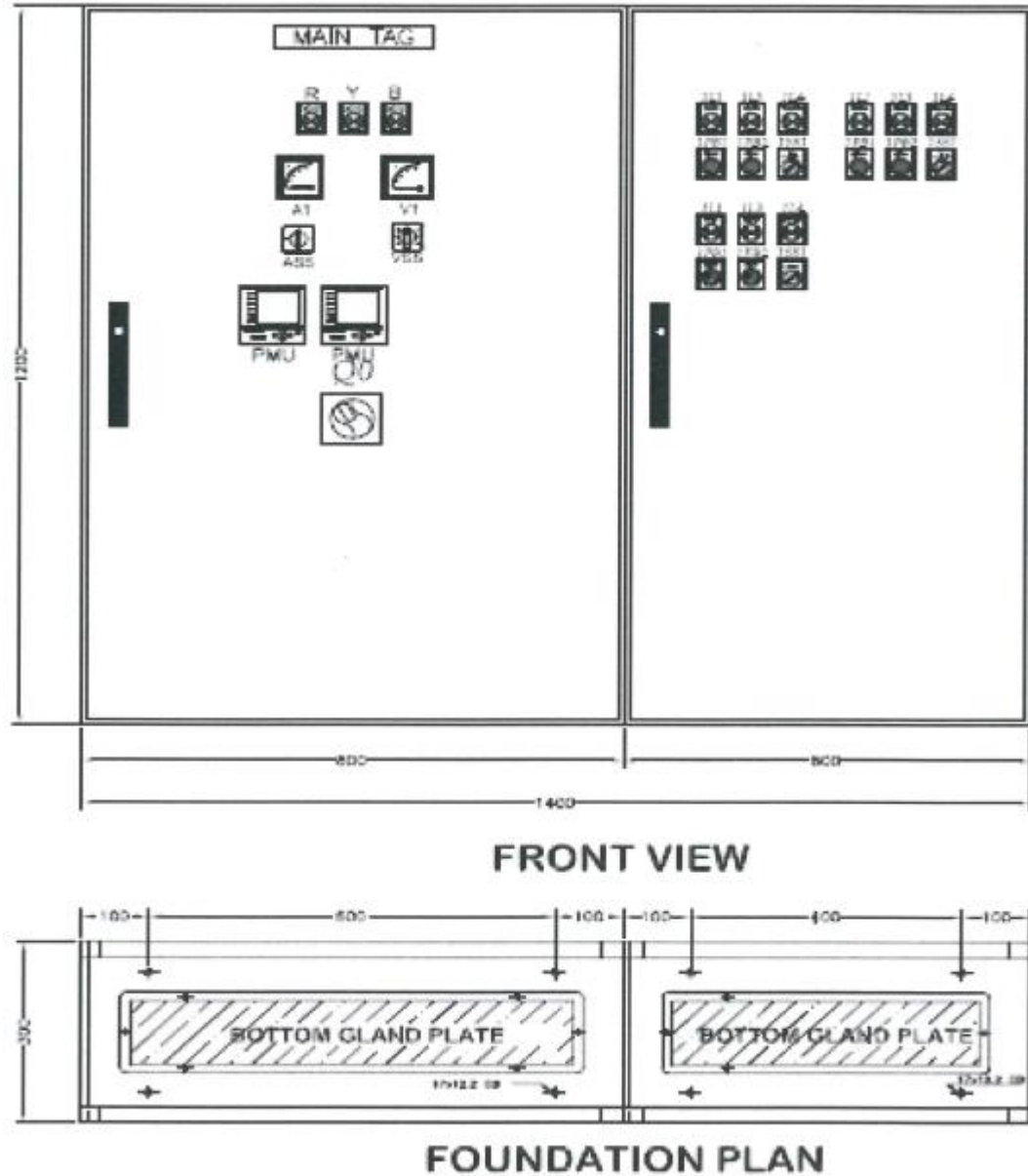
1. Cable entries both incoming and outgoing of MCC Panel shall be glanded and terminated.
2. Cable bending radius should be as large as possible and shall not bend to a radius less than as specified in relevant IFC specifications, manufacturer instruction and KAHRAMAA standards.
3. Cable shall be supported in accordance of the IFC Specifications and KAHRAMAA regulations.
4. Approved cable glands shall be used for glanding.
5. Cable termination shall be done by skilled Electrician under the supervision of Supervisor.
6. The number strands of cable core shall not be reduced at the termination point.
7. Approved cable lugs shall be used for termination.
8. Lugs shall be insulated with an approved type of insulation tape or heat shrinkable sleeve after crimping the lugs before termination.
9. The insulation tape or heat shrinkable sleeve shall be adhered to the core securely and permanently.
10. Cable identification tags shall be provided at both ends of the cable.

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11. Cables shall be tested for continuity and insulation resistance test.
12. BACS and Fire Alarm Interface
13. All necessary cabling from the main fire alarm panels to the MCCs panel shall be provided.
14. Fire Alarm cables shall be terminated at the designated contact point in the MCC Panel.
15. Similarly, the connection of BACS interface cable shall be provided.

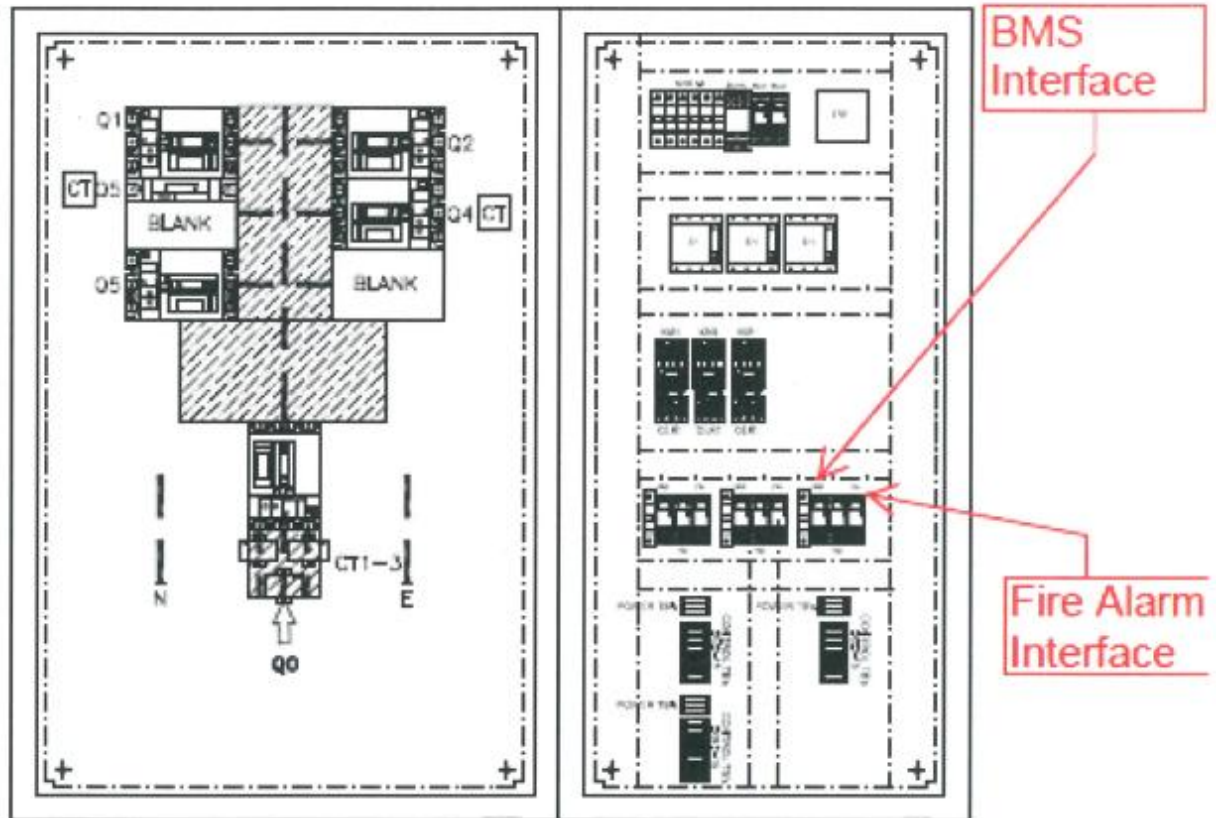
**Note:**

Suppliers of these MCC Panels shall be coordinated for the connections details and for effect satisfactory operation in future. Please refer to Drawings below for reference.



Sample Figure-9 : SMDB Enclosure View

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## COMPONENT LAYOUT

Sample Figure-10: SMDB Internal Connection Blocks for FA & BACS

### 4.2.10 Inspection

1. Ensure that the Motor Control Centre installation is complete and all electrical & mechanical comments on installation are completed & approved.
2. Ensure that the MCC are properly tagged & identified location wise and service wise as specified.
3. Ensure that the wiring termination to the Motor Control Centre is complete, tight & secure.
4. Ensure that the outgoing cables (power & control) from the MCC are terminated in the respective equipment / panels & properly tagged and identified.
5. Ensure that the earthing of the Motor Control Centre has been completed.
6. Ensure all BMS wiring has been completed.
7. All MCC shall be properly equipped for the connection to BMS and Fire Alarm System.
8. Ensure that the cables to the MCC are properly tagged & identified.
9. Ensure that the rating of the breakers (MCCB, MCB, ELCB, relays, contactors, timers, etc..) is as per verified shop drawings & schedules.
10. Ensure that overload relays are selected & set as per the actual connected load.
11. Ensure that emergency stop switches are provided.
12. Ensure the metering connections are proper.
13. Check manually the breakers of all the cubicles in the MCC.

### 4.2.11 Testing

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### Insulation Resistance Test

1. Test insulation resistance of all circuits with the control centre as ground.
2. When performing resistance measurements in motor control centres use an insulation tester (Megger) with a potential of 500-1000V.
3. Take readings between each phase and from each phase to ground. This should be done with the branch disconnects OFF

### Torque Test

1. When making bolted assemblies, the following considerations should be generally followed. The tightening torques is determined by the size of hardware used.
2. Check the termination of the cables to the bus bars are tightened to the required torque using torque wrench.
3. Metal-to-metal — Apply standard tightening torque as listed:
  - i. Recommended tightening torques

Thread size	Torque (lb.-in.)
8-32	20
10 - 32	27 - 32
1/4 - 20	75
5/16-18	100
3/8 - 16	247
1/2 - 13	613

### REDLINE MARK-UP & AS-BUILT

If due to any conditions that arises during the construction phase that construction team is unable to follow the IFC/Approved drawings. The following procedure shall be followed.

1. Mark the (location, cable sizes, etc.) Change (Non Adherence to the approved Shop drawings) or amperage then this information shall be detailed in the drawings with Red Lines and shall be part of the documents during the inspection (According to ITP).
2. After approval of inspection with changes (RED Lines Drawing). This information will be incorporated in the AS-Built drawings.

### IDENTIFICATION LABEL

1. All identification labels and notices in accordance with BS 7671 and KAHRAMAA shall be provided.
2. Warning, caution and instruction notices where indicated in the engineering system sections of this Specification or on the drawings shall be provided.
3. It shall be ensured that all identification labels and notices shall be installed in a visible position, without interference to the operation and maintenance of equipment.
4. It shall be ensure that labels and notices are sized in proportion to the equipment on which they are mounted and that they are securely fixed.
5. When conductor fixing and termination is completed then Permanent label and notices shall be provided according to the Approved method statement of "TAG and Marking(M008-RLR-ELE-MES-00018)"

## 5 Quality

The Inspection and Test Plan (ITP) for this Method Statement summarizes various characteristics to be checked. The concerned Site Engineer or Site Supervisor will be

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responsible to ensure compliance for these operations and the site QA/QC Engineer will carry out quality control checks and report the inspection results.

### 5.1 Quality Records:

ITP reference No: M002-RLR-ELE-ITP-00014.

Quality records shall be provided as identified in the ITP and maintained as per ISO 9001/QCS 2014 section 2 part 5 QR Quality Guidelines.

Required form of records and reports are defined in the Inspection and Test Plans. Refer to Doc. No: M002-RLR-ELE-ITP-00014.

## 6 **Health and Safety Plan:**

- a) The Health and Safety Plan: M002-RLR-HMS-PLN-00001 will be strictly adhered to at all times.
- b) Compulsory RLR HSE induction is required before access to workplace is permitted. PPE relevant to the scope of work risks as identified must be utilized.
- c) Compliance with the HS Summer working plan is compulsory Ref: M002-RLR-HMS-00003.
- d) Expose to direct sunlight; including Installation of MCC-Panels shall be avoided 11.30 AM to 3.00PM hours during Hot seasons. Precaution shall be taken on heat strokes, dusty winds and other unsuitable weather conditions.
- e) Workplace HS communication ie Toolbox talks, task briefings and HS non compliant notices / closeouts are compulsory.
- f) The health and safety Department shall create and approve tool box talks which the safety office shall conduct such meetings shall cover, at various times and before use of equipment, the respective matters consisting of, but not limited, to:
  - i. Use of tools including specialised equipment;
  - ii. Personal protective equipment;
  - iii. Smoking;
  - iv. Handling of waste material;
  - v. Use of ablution facilities;
  - vi. Barricades, signs and warning tape;

Rev 0012: July: 2016

<b>RLR EMERGENCY CONTACT NUMBERS</b> In case of emergency, accident, sickness	

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<b>FIRST AIDER</b>	
Management Office: _____	

Contacts for Traffic issues:

Security Manager		
Traffic Manager		

### 6.1 Specific Measures:

Specific measures related to span erection are as follow:

1. Working at height: all measures described in M002-RLR-HMS-PRO-00005 shall be in place during erection activities.
2. Load shifting Machinery
  - i. Do not operate any load shifting machinery without training and approval.
  - ii. Operators of forklift trucks, bulldozers, loaders, excavators, trucks should possess appropriate certificates/ Passes.
3. Manual Handling
 

Avoid manual handling operations as far as possible to minimize the risk of injury. Estimate the weight of the load. Lift an object with a correct posture. Wear suitable protective equipment. Put on gloves as far as possible to protect your hands from any cut, scratch or puncture, and wear safety boots or shoes to prevent injury to toes by heavy falling objects .Seek assistance from someone in lifting a load if necessary.
4. Portable Power Tool
  - i. Do not use a portable power tool (such as saw, grinder and drill) unless its dangerous parts have been effectively guarded.
  - ii. Place the electric cable and hose of a tool at an appropriate position to avoid tripping hazards.
  - iii. Do not operate a cartridge operated fixing tool unless you have possessed a valid
  - iv. certificate.
  - v. Wear suitable eye and ear protectors while operating a cartridge-operated fixing tool.
  - vi. Use a cartridge-operated fixing tool with great care.
5. Scaffold (Mobile)
  - i. Do not use scaffolds unless they have been erected by trained workmen and under the supervision of a Supervisor.
  - ii. Do not use a scaffold unless it has been inspected and certified safe (A Green Tag to visibly hoist on the scaffolds) by a Certified Supervisor before use.

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- iii. Strictly follow the instructions of a Supervisor. Do not alter the scaffold unless authorized to do so.
- iv. Do not work on an unfinished scaffold.
- v. When it is necessary to work on a mobile scaffold, lock the wheels of the scaffold before you start working.
- vi. Do not work on a scaffold unless it has been provided with a suitable working platform.
- vii. Ladders shall be used where no other means of access is possible.

## 6. Safety Requirements.

- i. First Aid Kit to be provided at Station working areas in consultation with HSE officer.
- ii. Clean up work area immediately after each task; never leave an area that is cluttered
- iii. with tools or supplies that could present tripping hazard.
- iv. Barriers as required shall be in place wherever necessary.
- v. Visible "Safety sign" shall be provided where necessary as per HSE requirements.
- vi. Good quality gloves are to be worn to protect your hands when using the equipment or handling materials.
- vii. The basic Personal Protective Equipment for this particular job are:
  - a. Hard Hats (Hat Colours as specified by HSE Department)
  - b. Gloves (Must Be Task Specific)
  - c. Goggles (Clear Glass for underground areas and Black Glass for work in Sun Light)
  - d. Reflective Vest
  - e. Safety Boots (High Ankle as Qatar Rail)

Note: Always wear safety spectacles when using the equipment.

Other specific risks & measures are addressed in the Risk assessment attached in Appendix B.

## 7 Environmental:

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The site team including subcontractors shall implement the following environmental controls measures:

- a) The waste material from the installation of MCC - Panel are to be placed in waste skips provided at site.
- b) Unused materials shall be returned to the stores for appropriate storage according to manufactures' instructions for potential reuse;
- c) Colour coded skips with signage shall be provided for waste segregation (general waste, metals, and plastics). Separate colour coded storage skips to be used for hazardous material.
- d) Good housekeeping shall be maintained regularly at job site.

## 8 Interfaces and Permits

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### 8.1 Interfaces

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- Not Applicable

### 8.2 Permits

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- Qatar Rail Permit 2

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## 9 Appendices / References:

### 9.1 Appendices:

- Appendix A –Inspection and Test plan;
- Appendix B– Risk Assessment;
- Appendix C- Test Report

### 9.2 References:

This Method Statement shall be read in conjunction with the following documents:

#### Material Submittal:

Material submittal for MCC Panels  
Material submittal for Cable Glands.  
Material Submittal for Fir Resistant Multicore Armoured Cables.  
Material submittal for Identification and Labeling.  
Material Submittal for Low Voltage LSOH Cables & Wires.  
Material Submittal for Distribution Boards.  
Material Submittal for Cable Accessories.  
Material Submittal for Wiring Devices and Accessories.  
Material Submittal for Identification and Labelling  
Material Submittal for ATS Panels.

#### Method Statement For:

Document No.	Document Title
M002-RLR-ELE-MES-00001	Installation of Cable Containment System
M002-RLR-ELE-MES-00002	Installation of GI Conduits, Flexible Metallic Conduits & Accessories
M002-RLR-FRS-MES-00009	Installation of Fire Alarm Control Panel & Repeater Panels
M002-RLR-ELE-MES-00010	Installation of Wiring Accessories & General Power
M002-RLR-ELE-MES-00018	Installation of Tag's & Markers
M002-RLR-ELE-MES-00011	Installation of LV Cables & Wires

#### Specifications:

Document No.	Document Title
M002-RLR-MEP-TEN-00007	Volume 6 – Employer's Requirements – Design Specifications
M002-RLR-MEP-TEN-00008	Material and Workshop Specifications Volume 7
M002-RLR-MEP-SPE-27005	DD2 –Qatar University Station-WP11.2 MEP Specifications
M002-RLR-MEP-SPE-36303	DD2 – Lusail Station-WP18.2 MEP Specifications
QCS 2014	QCS 2014 Section 21 Part 2, Clause 2.2.2
M002-RLR-ELE-SPE-36013	Lusail Station - WP18.2 - DD2 - Earthing and Bonding Specifications
KAHRAMAA	Section 01, Part 104, Clause 12
Volume 6 –Contract's Requirements Design Speciation's	13.3 Electrical Works Description,(13.3.2 General Design Criteria) 13.3.3 Station
BS EN 61439	Automatic Transfer Switching Equipment Installation
BS EN 7671	Standards for Electrical Installation
BS EN 60947	Low voltage circuit breaker
BS 4794,	Pt 2 IEC 337 – 2 Control Devices
NFPA 70	National Electrical Code ®

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NFPA 130	Standard for Fixed Guide way Transit and Passenger Rail System
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**Reports & Calculation:**

<b>Document No.</b>	<b>Document Title</b>
M002-RLR-MEP-RPT-27003	DD2- Qatar University Station Earthling & Bonding Report
M002-RLR-ELE-RPT-26000	DD2- Qatar University Station WP11.2 – MEP Design Report
M002-RLR-ELE-CLN-26004	DD2- Qatar University Station Electrical Calculation Notes
M002-RLR-MEP-RPT-27701	DD2- Qatar University Station BACS Sequence of Operations
M002-RLR-MEP-RPT-27702	DD2- Qatar University Station BACS Input/output Schedule
M002-RLR-MEP-RPT-27703	DD2- Qatar University Station BACS Design Report

<b>Document No.</b>	<b>Revision</b>	<b>Title</b>
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