

**METHOD STATEMENT GI CONDUITS,  
FLEXIBLE METALLIC CONDUIT AND  
ACCESSORIES**

**RED LINE NORTH ELEVATED AND AT  
GRADE**

**RAIL PROJECT**

**Revision and Issue Records**

Review History

1	27/10/16	For SONO	SHA	MAG	PSE
<b>Rev. No</b>	<b>Date</b>	<b>Description</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Approved</b>

Document Review and Approval

Signed : _____ P.Serra	Signed : _____ M.Agrimakis	Signed : _____ M. Ali	Signed : _____ R.Neri
<input checked="" type="checkbox"/> <b>Originator</b>	<input checked="" type="checkbox"/> <b>Construction</b>	<input type="checkbox"/> <b>Stakeholder</b>	<input checked="" type="checkbox"/> <b>Quality</b>
Signed : _____ J. Brinks	Signed : _____ E. Ndarake	Signed : _____ M. Thompson	Signed : _____ D. Bernasconi
<input checked="" type="checkbox"/> <b>Health and Safety</b>	<input checked="" type="checkbox"/> <b>Environment</b>	<input type="checkbox"/> <b>Commercial</b>	<input checked="" type="checkbox"/> <b>Cont. Rep.</b>

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## 1 Definitions and Abbreviations:

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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

<b>Abbreviation</b>	<b>Definition</b>
SONO	Statement of No Objection
PPE	Personal Protective Equipment
RLN-EAG	Red Line North Elevated and At Grade
RLR JV	Rizzani de Eccher, Lotte and Redco - Joint Venture
BPS	British Standard Pipe
NPT	National Pipe Thread
MS	Method Statement
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 GI Conduits, Flexible GI Conduits and Accessories at Qatar University Station. 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. The Scope of Works includes the site inward inspection, material delivery inspection, installation to be adopted to ensure that all elements of the GI Conduits inspected for the works is in accordance with the project requirements.

## **3 Scope of Method Statement:**

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The scope of application of this method statement is the Installation and inspection of Cable Containment system for Qatar University Station (Sec.11 Chainage: 26+441 to Chainage: 26+711, Zone A to Zone F) 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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Ref.	Trade & Despines	Responsibility

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>

		<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.

#### 4.1.2 Equipment and tools :

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

##### Plants

No.	Type	Use
1	Scaffolding	For the GI Installation
2	Lights	For use during night operations
3	Generator	For Power Generation for Lights

## Small Tools and Equipment

- PPE for all staff and labour
- Measuring tapes and setting out markers
- Fitter Tool Box
- Spirit Level
- Screwdriver set
- Maker/Whitener
- Mechanical Winches
- Wooden Hammer
- Round files
- Bench Vice
- Bending Machine
- Tripod stand vice
- Mobile Scaffolds
- Man Lift (MEWP)
- Hacksaw, Portable Power Saw
- Conduit Bevelling Tool, Portable Sander or Abrasive disc
- Drilling Machine
- Grinder
- Zinc Spray Paint
- Lubricant

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.

### 4.1.3 Material

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GI Conduit and Flexible system shall be approved by the Engineer. And shall be according to

- BS 4568 for Metallic Conduits.
- BS 731 Flexible Conduit.

All related accessories shall be according to material approved by the Engineer.

All conduits and fittings shall be fire rated for 2hr as per NFPA 130.

#### ➤ Handling and Storing of Materials

All the materials related to installation of Metallic Conduit and Flexible Conduit will be inspected at on just after delivery of site. All materials delivered to site must be according to the make and relevant model numbers approved by consultant and client. All materials delivered to the site will first be inspected by the store in charge/site in charge, to check that it is in accordance with the site requirement, the approved design and material qualification and that it is free from any damage caused during delivery to site. Delivery documentation shall be checked for completeness, delivery documents must include all Accessories. Defective or damaged materials shall either be returned to their supplier's facility or stored on site at a suitable quarantine location, but it shall be permanently out of project premises. The inward inspection of materials will be carried in accordance with relevant QA/QC procedure. Materials should be kept in a location and condition according to the MSDS recommendations before and after the material inspections. No materials will be permitted to enter the works locations without being inspected on arrival to the site.

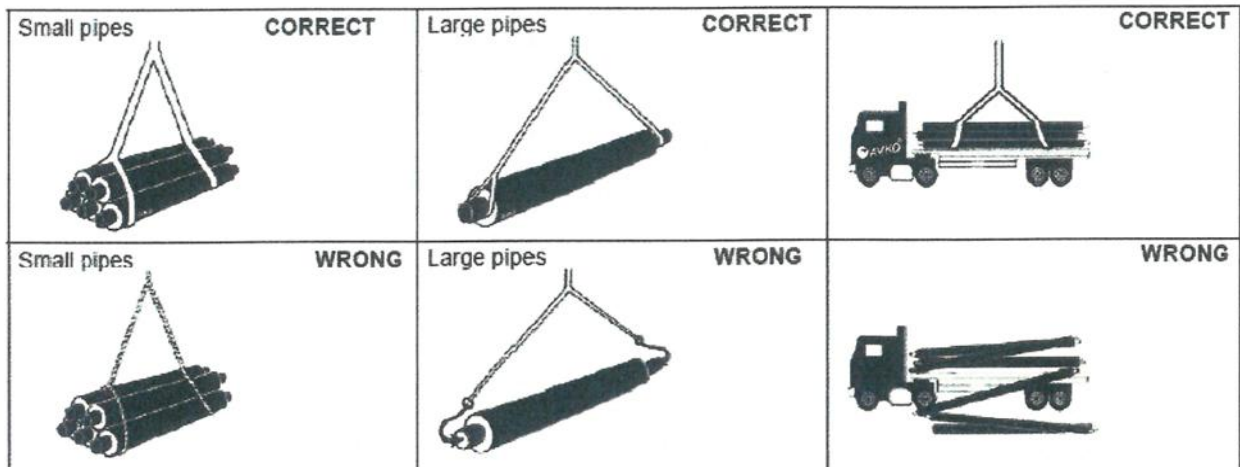
#### ➤ Receiving and Unloading

Conduits are to be checked on unloading. Possible damages must be reported on the delivery note.

When unloading with Crane.

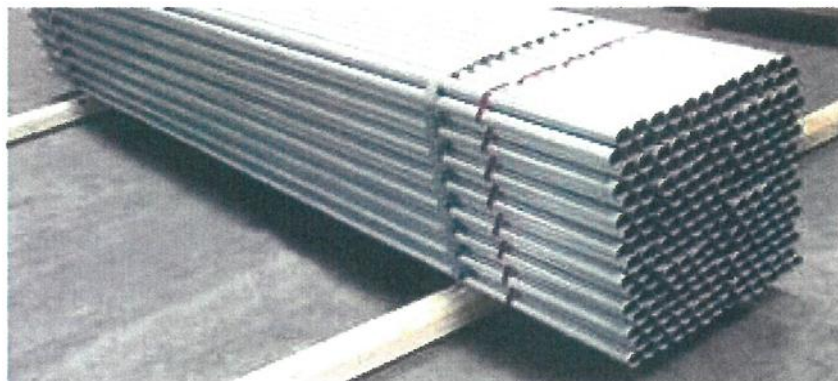
1. Lifting belts shall be used; chains and ropes shall not be used.
2. The lifting belts must be placed outside around the bundles.

3. Steer the bundles manually to prevent them colliding with anything.
4. Do not move the bundle on the truck with the aid of levers or crowbars .
5. Do not allow the conduits to be impacted by any hard object (e.g. crane hook, chain etc.)



**Figure- 1** (Sample Picture) GI conduit Off Loading with Crane When unloading with a forklift truck

1. When placing the bundle transversely on the forks, make sure the forks are positioned sufficiently widely apart. Figure - 2
2. When placing the bundle longitudinally on the forks, place protective timber between the bundle and the fork's base. Better is to transport the bundle in transversal direction on the fork teeth.



**Figure- 2** (Sample Picture) GI conduit Storage for lifting with Fork Lifters

➤ Storage

1. Conduits shall be stacked on a flat surface free from sharp projections, stones or other objects likely to caused point loading or conduit deformation.
2. The storage area shall be kept in proper level, so that the stacked conduits may be uniformly supported throughout their length. Figure - 3.
3. Conduits shall not be dropped on hard surfaces and shall not be dragged along the ground.
4. Manual handling of material shall be done only for the small lengths/sections cut according to appropriate weight category.
5. Manual handling of the material shall be according to QCS 2014 Section 11 Part 1.2.7.
6. If mechanical lifting equipment is used, ensure no metallic slings, hooks or chains shall be used in direct contact with the conduit. Rope or nylon belt sling shall be preferred which should not damage or cut the conduit surface.
7. Conduit of different sizes or wall thickness shall be stored separately.



**Figure- 3** (Sample Picture) GI Conduits Storage

8. The stacks shall be protected from direct sunlight by covering with tarpaulin sheets.
9. All the conduit fittings shall be stored in the boxes as supplied by the fittings manufacturer.
10. Any discrepancies, damage, and etc. found to the materials (Conduit fittings) shall be notified and reported to QA/QC Engineer and Project Engineer for further action.
11. Conduit shall be stored in a place free of water, dust and adequately covered to avoid any kind of damages.
12. Put the bundle down only on ground that is sufficiently hard to prevent the base timber sinking into it. Figure - 4.
13. Leave sufficient space between individual bundles.
14. To avoid damage to the sealing elements, store individual conduits only on a wooden base.



**Figure- 4** (Sample Picture) GI conduits Storage

## 4.2 Site Execution

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### 4.2.1 Program

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

#### 4.2.2 Installation procedure

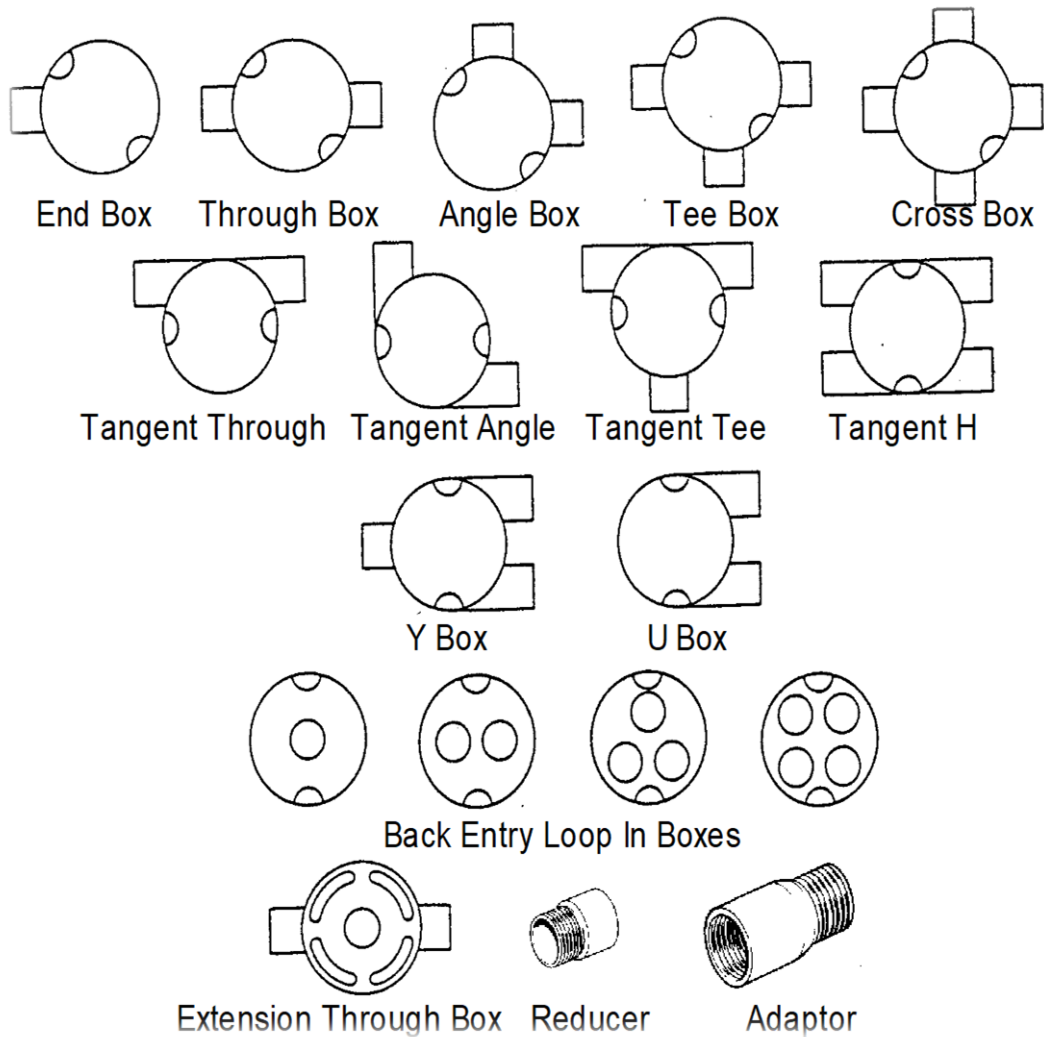
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➤ Pre-Requisites

It shall be ensured that all work is completed and site is cleared from civil section to install GI conduits.

Prior to start installation, it shall be ensured that latest approved shop drawings/ MEP services coordination drawings related to the installation area are referred and that required materials are available at site as per approved material.

1. No conduit smaller than 20mm in diameter or larger than 50mm diameter shall be used.
2. Figure- 5 illustrates a range of galvanised steel conduit boxes, reducers and adaptors.



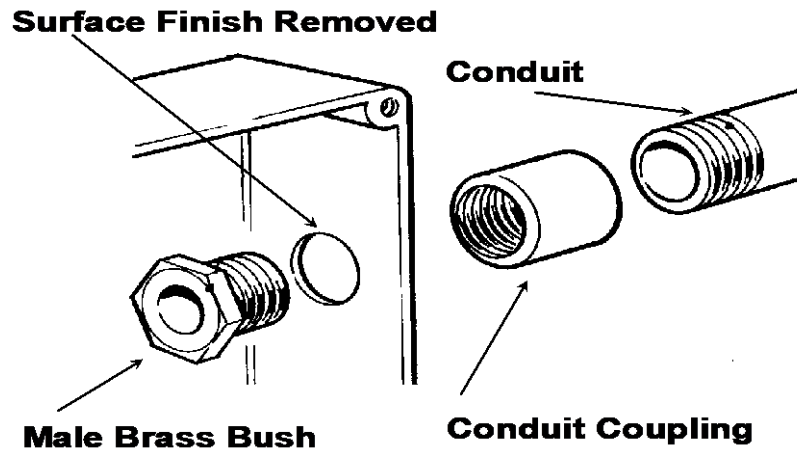
**Figure - 5** (Sample Picture) GI Fitting

3. Connections between steel conduits and accessories shall be threaded up tight Figure-6 where coupled by a socket the conduit ends shall butt together; running joints shall be provided with threaded coupling which shall be up tight.



**Figure - 6** (Sample Picture)

4. Drawn-in boxes must be provided to give access to all conduits for the drawing-in or out of any cable after the installation is completed. See Figure- 7



**Figure - 7 (Sample Picture)**

5. GI conduits run on the surface shall be secured with galvanized saddles spaced, at appropriately distances so that it can hold the conduit firmly. Figure - 8, the saddle spacing is given in Table - 1.



**Figure - 8 (Sample Picture)**

6. The table below shows a suggested spacing of supports for steel conduits up to 25mm in diameter. Supports should be positioned within 300mm of bends and fittings. The table assumes that the conduit is not subject to other external mechanical stresses.

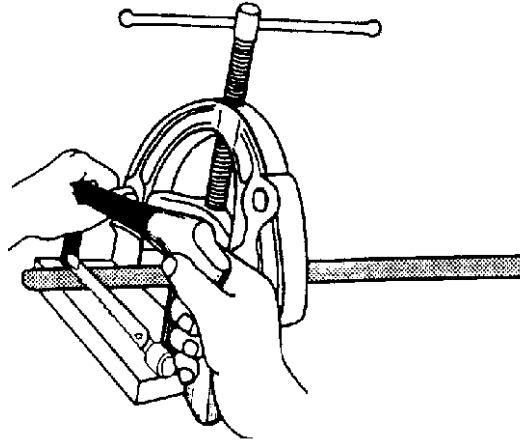
Conduit Size	Horizontal Spacing Runs	Vertical Runs
20-25mm	900 mm	1200 mm
32-38mm	700 mm	1000 mm
50mm	500 mm	700 mm

**Table – 1**

➤ **Cutting Steel Conduit**

Conduit should be cut with a hacksaw. The cut should be made at right angles to avoid difficulty in threading the conduit. Figure – 9, illustrates this process.

1. Hold conduit to be cut securely in a pipe vice. Avoid damage to the galvanised coating.
2. Stand square to the job and make sure your movement is unobstructed.
3. Grip the hacksaw lightly and apply light pressure on the forward cutting stroke. Use the full length of the blade.



**Figure – 9** (Sample Picture) Conduit Cutting Method

➤ Threading Steel Conduit

It is necessary to cut threads on the conduit ends in order to screw them into conduit couplings and accessory boxes. The conduit ends are threaded using stocks and dies. After threading the ends, all internal burrs must be removed to ensure that cables are not damaged as they are being drawn into the conduits.

*All threaded ends must be screwed up tightly into accessories to ensure earth continuity.*

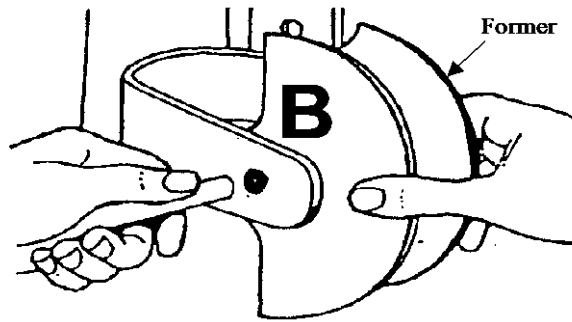
1. Hold the conduit securely in a pipe vice (ensure that pipe vice jaw bolts are tight).
2. While threading keep the die well lubricated preferably with a manufacturer's paste or tallow.
3. Thread to required length and remove any burrs with a file or reamer, this will prevent sharp
4. Edges causing damage to cables while being drawn into the conduit.
5. To ensure a clean, unbroken thread the die should be rotated counter-clockwise frequently and finally run up and down the threads to remove any swarf (metal fragments).
6. For small area of work a hand held threading handle is made up of a stock to which the handles are attached and to which the cutting die is inserted in shall be used. The BPS threads are used in the state of Qatar on site but for NPT standard can also be used.
7. Good practice is to thread the conduit one thread short. This is to prevent conduit from butting inside the coupling. This practice will permit a good electrical connection between the conduits and couplings.
8. To insure that the threads are properly engaged, the coupling should be made up hand-tight, and then wrench tightened. Generally, wrench-tightening should not exceed three.
9. A simple rule regarding the use of tools is to select the right type and the right size. The proper size wrench for a given conduit size trade is indicated in Table 2.

Proper Wrench Size		
Sr. No	Conduit Trade Size (mm)	Wrench Size (mm)
1	20	250-300
2	25	300-350
3	32	350-450

**Table-2**

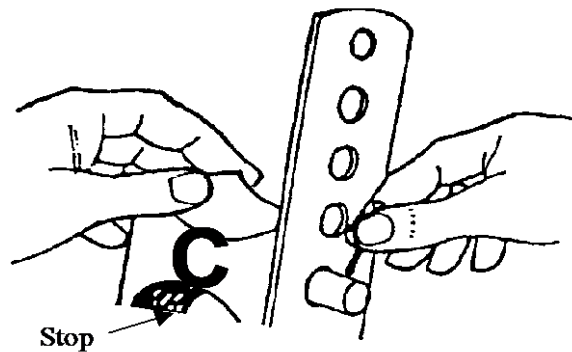
➤ Setting up Sequence of a Bending Machine

1. Place the semi-circular former 'B' (to suit the size of conduit to be bent) in position and secure the centre-pin, see Figure 10.



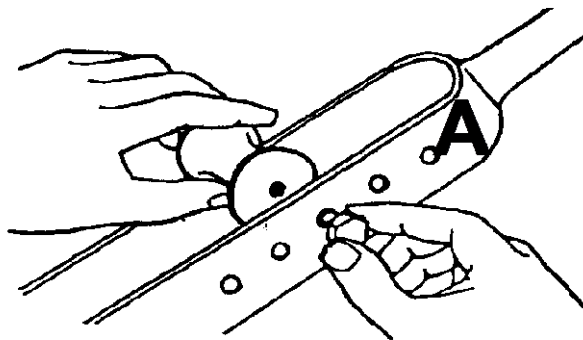
**Figure 10**

2. Position the stop 'C' in the correct position for size of conduit, see Figure 11.



**Figure 11**

3. Insert the grooved roller in the correct position for size of conduit, see Figure 12.



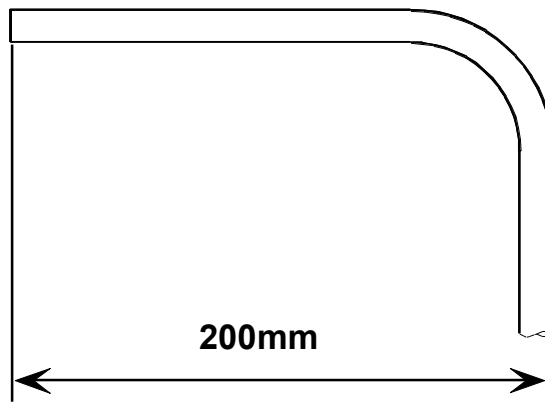
**Figure 12**

➤ **Bending Steel Conduit**

The most common method of bending steel conduit is to use a bending machine. The following are the main steps to be taken when using a bending machine.

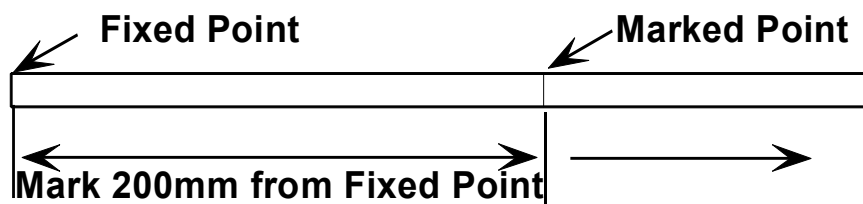
1. Insert the conduit under the stop and into the groove in the former.
  2. Pull down the handle, allowing the roller to bend the conduit around the former.
  3. Use a template to compare the angle of the bend formed with the desired angle.
  4. Bends should be formed to an internal radius of not less than 2.5 times the conduit diameter.
- **Making a 90° Bend in Steel Conduit**

Figure 13 illustrates a right angle bend in steel conduit, which must be formed to a dimension of 200mm.



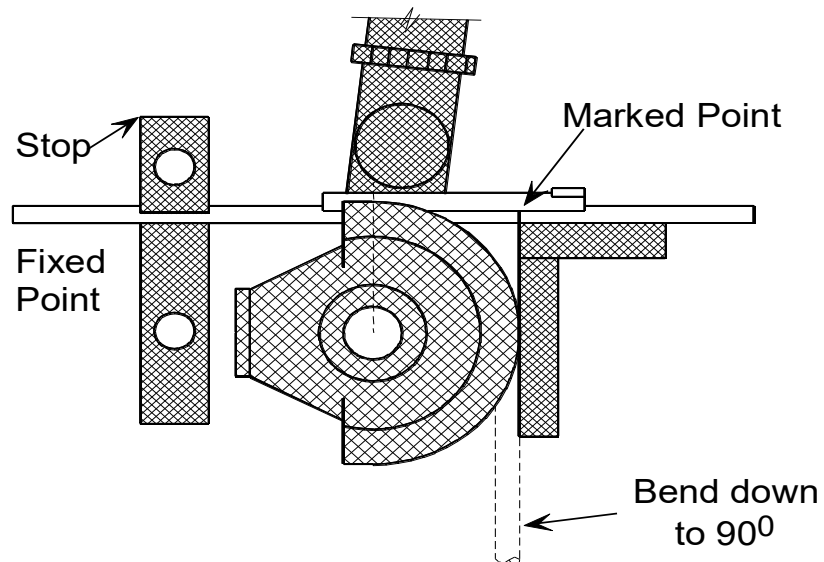
**Figure 13**

First step is to mark off 200mm from the end of the conduit as illustrated in Figure 14.



**Figure 14**

The next step is to place the conduit in the former with the mark to the rear. Position the conduit so that a try-square, held against the mark touches and forms a tangent to the edge of the former as illustrated in Figure 15.



**Figure 15**

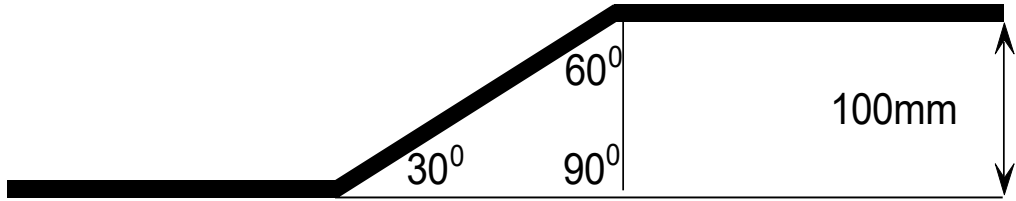
Next pull the lever down until the 90° angle, is achieved Making a Double Set or Offset in Steel Conduit Normally offsets should be formed at either 30° or 45°. A 30° offset is preferred for two reasons:

- Ease of measurement.

- Ease of drawing-in cables.

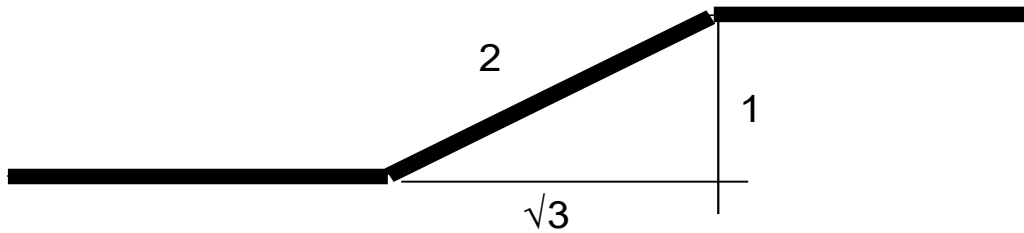
➤ Forming of a 30° Offset

Figure 16 illustrates a 30° offset to be formed in steel conduit. From the illustration it can be seen that the 30° angle is one of three angles forming a right angled triangle.



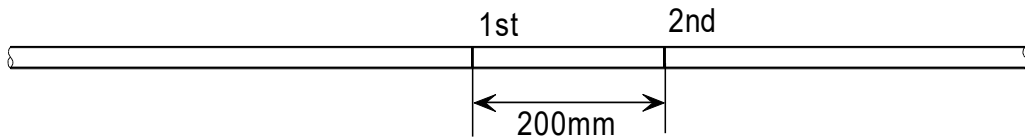
**Figure 16**

A rule of thumb for a right angle triangle (30°, 60°, 90°) states that the relationship between the three sides is in the ratio of 1:2:√3, see Figure 17.



**Figure 17**

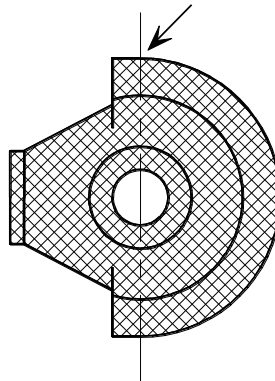
With this information, once we know the dimension of the offset (100mm in this case) we can now calculate and mark off the distance between the two bends. At this point take the straight piece of conduit and mark on it where you want the first bend to start from, then measure 200mm from that point to where the second bend starts, see Figure 18.



**Figure 18**

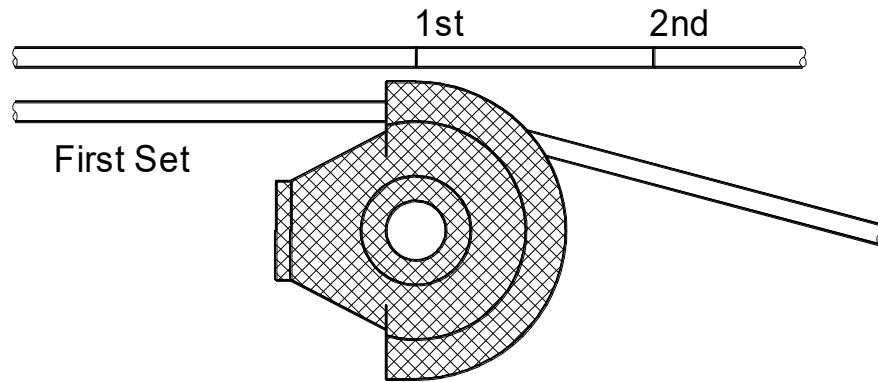
Now go to the bending machine. Mark a point on the former as shown in Figure 18.

X (in line with centre of former)



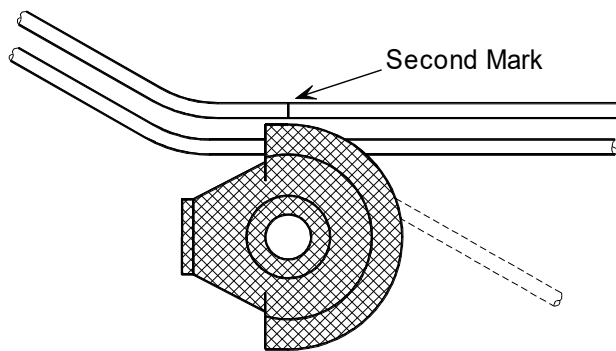
**Figure 19**

Place the conduit in the former matching the first mark on the conduit with the mark on the former and bend to 30° as shown in Figure 20. Now remove the conduit and check the offset angle against a 30° template.



**Figure 20**

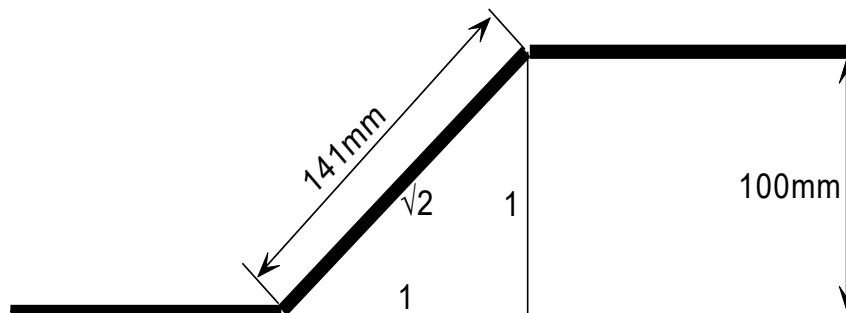
Place the conduit back in the machine pointing in the same direction as before but inverted and match the second mark on the conduit with the mark on the former, see Figure 21. The second offset is now formed until it is in parallel with the first offset.



**Figure 21**

➤ Forming a 45° Offset

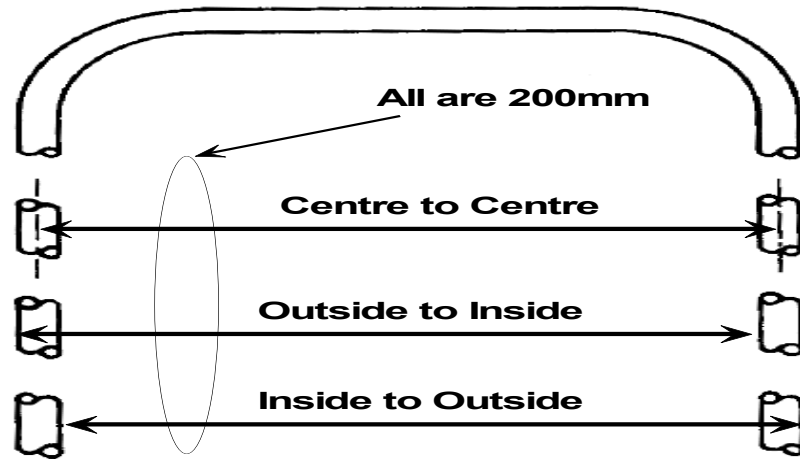
A 45° degree offset is formed in exactly the same manner as the 30° version except that the measurements between the first and second bends are calculated using the following formula  $1:1:\sqrt{2}$ . Figure 22 illustrates the use of this formula, in this case  $\sqrt{2} = 141\text{mm}$  or  $100 \times \sqrt{2} = 141\text{mm}$ .



**Figure 22**

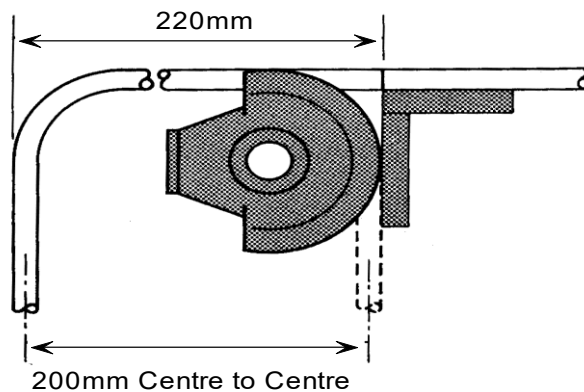
➤ Making a Double 90° Bend in Steel Conduit

Measurements for a double 90° bend in steel conduit can be taken using any of the three methods shown in Figure 23.



**Figure 23**

If you add the outside diameter of the conduit (20mm) to the centre to centre measurements (200mm) we can now mark the position of the second bend (220mm), see Figure 24. Bend down until the 90° angle is achieved.



**Figure 24**

**Note: - The above methods may require adjustments due to manufacturer's tolerances and wear in different bending machines**

➤ Flexible Conduits

1. Flexible conduits shall be employed for connecting electrical motors, lighting and other equipment subject to adjustment of position and vibration to the fixed wiring.
2. In damp and wet locations all flexible conduits shall be of the type to be used that prevents the ingress of water and moisture.
3. Flexible conduits shall only be run exposed and shall be so positioned that they are not susceptible to mechanical damage. Where necessary flexible conduits shall be adequately supported.
4. The ends of flexible conduits shall be securely anchored to the fixed conduit or equipment to which it is attached by approved flexible conduit adapters that maintain effective mechanical continuity securely in position without distorting it. The flexible conduit shall not be used as part of the earth conductor. A separate earth conductor shall be installed to comply with the same requirements for rigid conduit installations.

➤ Fixing of Conduits

1. Before fixing the conduits, the marking of the route shall be done and all related aspects of installation procedure shall be followed.
2. The conduits shall be adequately fixed to prevent excessive movement and damage during the installation and shall be protected from mechanical damage. Galvanized plated screws shall be used in all cases of galvanized conduit is installed. See figure 25 & 26.



**Figure- 25** (Sample Picture) GI Conduit Fixing

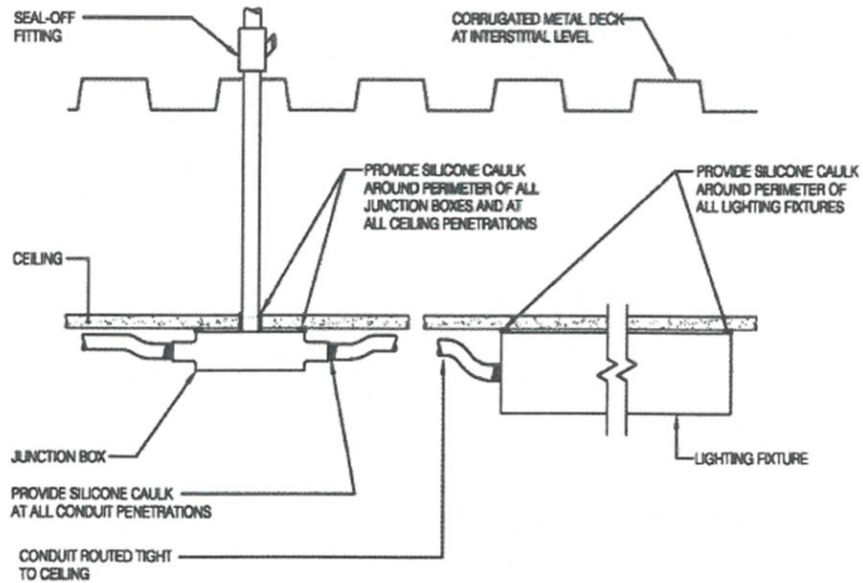


**Figure- 26** (Sample Picture) GI Conduit Fixing

3. Where conduits are left “open ended” prior to wiring caps or plugs to prevent the ingress of building materials shall protect them. See figure 27 & figure 28.

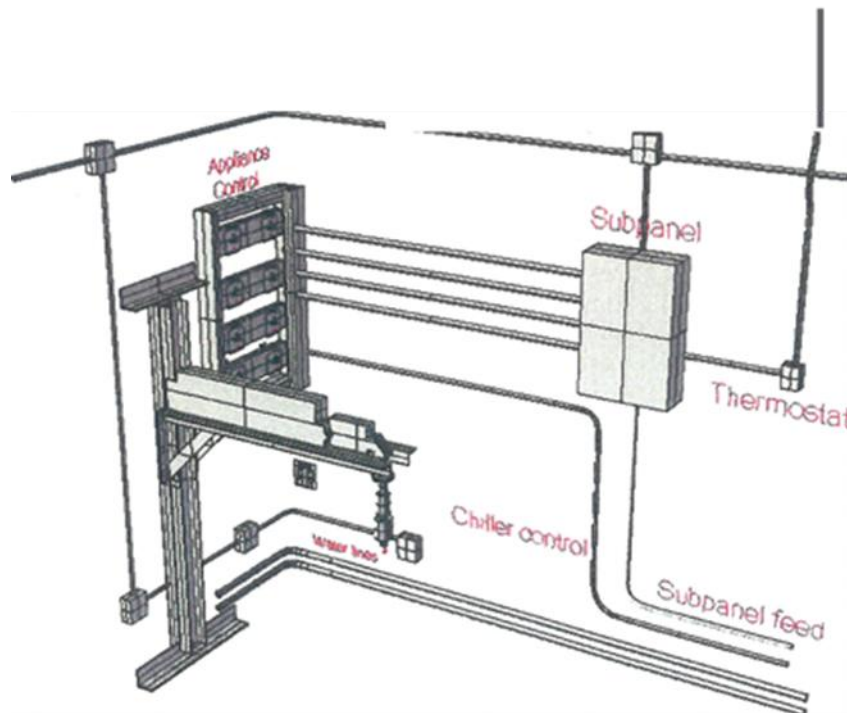


**Figure- 27 (Sample Picture) Wiring Cap**



**Figure- 28 (Sample Picture)'GI Conduits for Lights**

4. Where surface mounted equipment (other than luminaries) is specified, all conduits shall be terminated and an adaptable box (Rectangular or circular as per the shop drawing) installed recessed into the wall at every surface mounted equipment position.



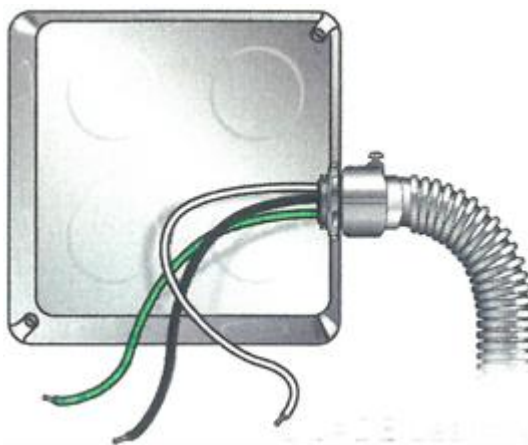
**Figure- 29 (Sample Picture)'GI Conduits for Lights**

5. Where conduits pass through an external wall/roof a conduit box shall be fitted on the inside and after wiring filled with an inert, permanently plastic compound having a high insulation value.



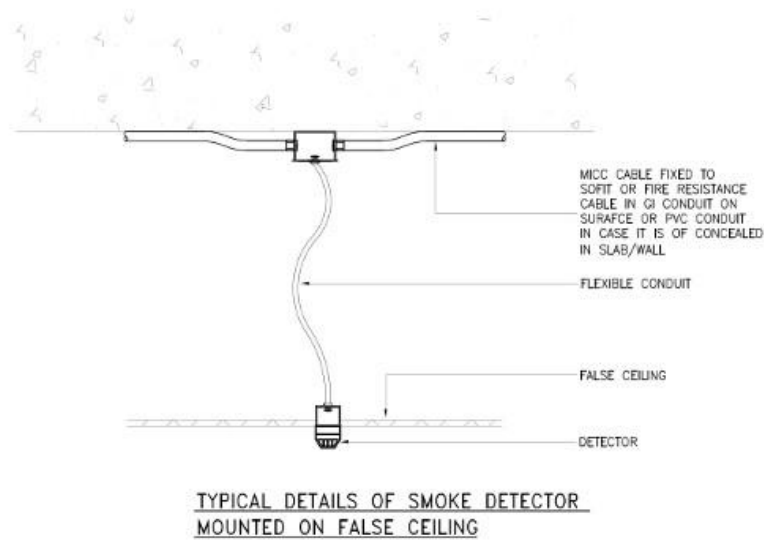
**Figure- 30** (Sample Picture) GI Conduits installation at building expansion joints

6. Make provision in conduits and trunking, insulation where building expansion joints are crossed or settlement is likely.
- Installation of Flexible Conduit
1. All conduits must be secured to outlet boxes, junction boxes or cabinets by placing locknuts
  2. on outside of box and locknuts and bushings on the inside of box.



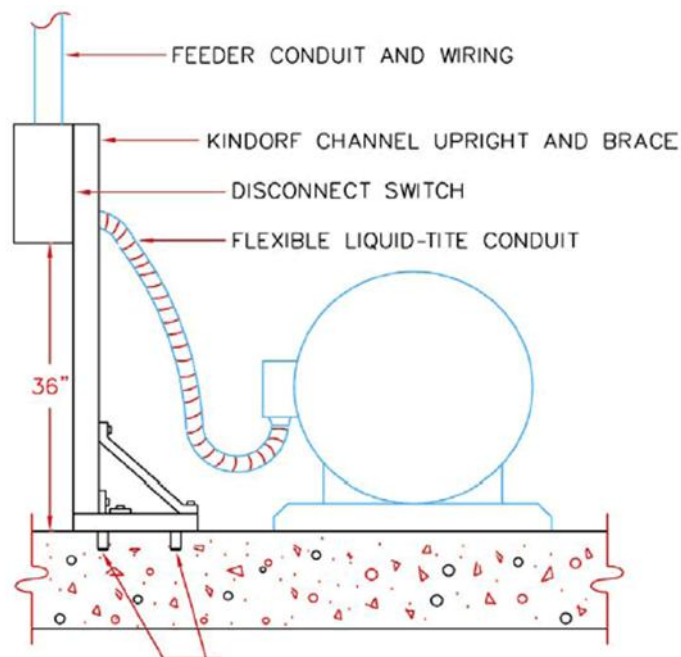
**Figure - 31** (Sample Picture) Flexible conduit terminations at Junction Box

3. Conduits connecting recessed fixtures and their adjacent junction boxes must be flexible metallic conduit 20 mm minimum size and shall be of sufficient length to permit dropping of the fixture below the ceiling (or Equipment to be connected) and to gain access to the junction box.



**Figure- 32** (Sample Picture) Use of Flexible Conduits

4. Conduit to motors shall be terminated in the conduit fittings on the motors, the final connection being made with liquid tight flexible conduit and suitable liquid tight connectors.



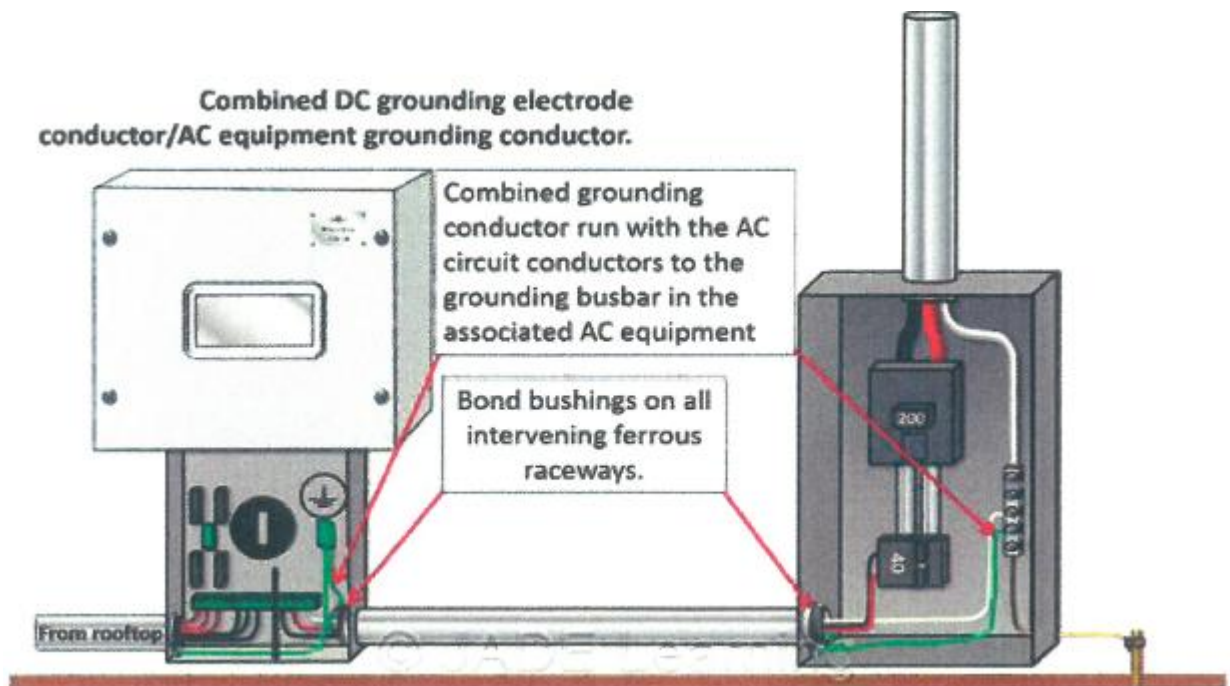
**Figure - 33** (Sample Picture) Use of Flexible Conduits

5. Where changes to flexible conduits occur, a watertight outlet box with threaded entries shall be inserted and the earth connection made to an internal terminal. The cover screws shall not be used for earthing connections.

➤ Bonding of GI Pipes

1. Metal raceways for feeder and branch circuits operating at less than 250 volts to ground shall be bonded to the box or cabinet.(REF: NEC code 250.)

2. Couplings fitted to removable covers or non-metallic equipment etc. shall be bonded to the earthing terminal of the equipment etc.
- Special Care
1. Conduits shall not be run closer to any steam or hot water pipes and shall be run underneath such pipes rather than over them.
  2. Particular care shall be taken to ensure that no grout or other foreign materials enters the conduit system through joints, or through surface openings. Screw holes in boxes must keep entirely free and clean. A compressed air is to be blown through the conduit system to ensure that it is clean and a steel draw wire of adequate size to be pulled through to a certain that no obstructions is adhering to the inside of the conduits.
  3. No wiring or draw-in wires, cables or wire of any description are to be drawn into the conduits until the section of the conduit system involved is complete.



**Figure - 34** (Sample Picture) Conduits system

➤ IDENTIFICATION OF ELECTRICAL SERVICES

Temporary identification labels and notices shall be provided immediately after installation inspection is APPROVED.

Warning, caution and instruction notices where indicated in the engineering system sections of this Specification or on the drawings shall be provided temporarily.

It shall be ensured that all identification labels and notices installed in a visible position. Permanent label and notices shall be provided according to the Approved Method statement of "TAG and Marking"

## 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 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-00002.

Quality records shall be provided as identified in the ITP and maintained as per ISO 9001/QCS 2014 part section 2 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-00002.

## 6 Health and Safety:

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### 6.1 Health and Safety Plan:

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- 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) Workplace HS communication ie Toolbox talks, task briefings and HS non compliant notices / closeouts are compulsory.
- e) 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	
<b>QATARI EMERGENCY CALL – FIRST AID, FIREFIGHTING BRIGADE, POLICE</b>	
<b>RLR Emergency Number</b>	
<b>QATAR RAIL DUTY MANAGER</b>	
<b>KAHRAMAA CALL CENTER ELECTRICITY &amp; WATER</b>	
<b>FIRST AIDER</b>	
<b>DEPUTY RESCUE MANAGER: Mr. Joseph Linehan</b>	
<b>HS Manager: Mr.Johann Brink</b>	
<b>HS Deputy Manager : Mr.Varghese Chattukulam</b>	
<b>Water Team</b>	
<b>Environmental Assistant: Mr.Chaitanya Veruva</b>	
Management Office: _____	

Contacts for Traffic issues:

Security Manager	Mr. Arif Khan	74795950
Traffic Manager	Mr. Eur Ing Miguel	50050399

## 6.2 Specific Measures:

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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.
  - 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 for underground areas and Black 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 GI Conduit and Accessories 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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- Not Applicable

## **9 Appendices / References:**

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### **9.1 Appendices:**

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

### **9.2 References:**

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

### **Material Submittal:**

Material submittal for GI Conduit, Flexible Metallic Conduit & Fittings, GI Back boxes.

**Method Statement For:**

<b>Document No.</b>	<b>Document Title</b>
M002-RLR-ELE-MES-00001	Installation of Cable Containment System
M002-RLR-ELE-MES-00019	Installation of Fire Alarm Cables
M002-RLR-ELE-MES-00007	Installation of Lighting Protection System
M002-RLR-ELE-MES-00008	Installation of Light Fixtures & Accessories-Back of House
M002-RLR-ELE-MES-00009	Installation of Light Fixtures & Accessories-Front of House
M002-RLR-ELE-MES-00010	Installation of Wiring Accessories & General Power
M002-RLR-ELE-MES-00015	Installation of Distribution Boards & Accessories
M002-RLR-ELE-MES-00017	Installation of Control Cables
M002-RLR-FRS-MES-00009	Installation of Fire Alarm Control Panel & Repeater Panels

**Specifications:**

<b>Document No.</b>	<b>Document Title</b>
M002-RLR-MEP-TEN-00008	Material and Workshop Specifications Volume 7
M002-RLR-MEP-SPE-27005	DD2 –Qatar University Station-WP11.2 MEP Specifications
QCS 2014	QCS 2014 Section 21 Part 7

**Reports:**

<b>Document No.</b>	<b>Document Title</b>
M002-RLR-MEP-RPT-27003	DD2- Qatar University Station Earthing & Bonding Report
M002-RLR-ELE-RPT-26000	DD2- Qatar University Station WP11.2 – MEP Design Report