ALDAR | ATKINS Middle East & India

CENTRAL MARKET REDEVELOPMENT

Document Approval Request - DAR

ACC ARABIAN CONSTRUCTION CO.

For the Attention of : WS ATKINS

DAR No | **Rev.**

We are forwarding herewith for your approval the Document as described under

Document No	Originator	Type of Document	Discipline	Building Code	Number	Revision
	25	MS	EL	PG	0003	1

Sheets 1

Submitted For Approval ☑ Information ☐ **Submittal Date** 26-Dec-10

Submitted By **1- ACC** ☐

Contact Person

2- Sub- Contractor / Supplier ☑

Name: THERMO LLC

Tel: 02 621 8232 Fax: 02 621 8234

E-Mail thermoad@emirates.net.ae

Type of documents

1- Pre-Qualification	☐	5- Schedules & Programms	☐	9- Non- Conformance report	☐
2- Monthly Reports	☐	6- Test Records	☐	10- O & M Manuals	☐
3- Design calculation	☐	7- QA / QC Document	☐	11- Others: (Specify)	☐
4- Method Statement	☑	8- Health & Safety	☐		

Discipline

Architectural	☐	Structural	☐	Mechanical	☐	Others	☐
Civil	☐	Electrical	☑	Plumbing	☐		

Document Title

METHOD STATEMENT FOR INSTALLATION OF G.I. CONDUITS & ACCESSORIES

ACC Review & Approval

	Prepared By:	Reviewed by:		Approved By:
Name :	YASSIR HASSAN (Thermo LLC)	ANTOINE KALACH	GEOFF BOTTOMLEY	SAEED MIHJAZI
Designation:	QA/QC	MEP Manager	HSE Manager	Sr. Proj. Quality Manager
Signature :				
Date :	26-Dec-10			

CENTRAL MARKET REDEVELOPMENT
WORK PACKAGE :

ACC ARABIAN CONSTRUCTION CO.

THERMO ثيرمو

Consultant Comments Clarification

Document Approval Request **Method Statement for GI Conduits & Accessories Installation**	**Submittal No:** 003 **Revision No:** 1 **Date:** 25.12.10	
Consultant Comments	**Action**	**Remarks**
BDSP Comments:-		
1-For method statement of MEP equipment and material installation refer to WSA comments. MEP equipment and materials shall be in accordance with the manufacturer recommendation	Comments Incorporated	
2-Methoad statement for inspection and testing to be submitted separately.	Noted	
3-BDSP approval on materials mentioned in the submitted method statement and testing and commissioning of the same shall not be inferred from this review. This is subject of a separate submittal review processes.	Comments Incorporated	
4-Include the following sentence in paragraph 5.6(quoted from the specification. All sets and bends in conduit runs shall be formed on site in bending machines. Manufactured bends shall not be permitted.	Comments Incorporated	
WSA Comments:-		
SITE SUPERVISION COMMENTS:-		
1-Installation to be done as per (approved material, approved coordination drawing, approved layout shop drawing, approved installation details, approved mock up)	Comments Incorporated	

ACC ARABIAN CONSTRUCTION CO.

THERMO ثيرمو

Consultant Comments Clarification

2-Adjust QA/QC engineer to QA/QC electrical engineer.	Comments Incorporated	
3-Exposed conduit in public area to be painted as per Arch, approval.	Comments Incorporated	
4-Adjust the inspection check list for work and material action code to A, B,C.	Comments Incorporated	
5-Adjust ITP ITEM 2, 3, 4 to be visual and dimensional.	Comments Incorporated	
6-Confirm procedure for fixation material (which not yet submitted) especially in case fixed on hollow block/gypsum board...etc.	Comments Incorporated	
7-All boxes to be accessible for maintenance purpose.	Comments Incorporated	
8-All boxes and conduit to be identified as per specifications.	Comments Incorporated	
9-IP rating to be considered if installation done in wet area.	Comments Incorporated	
10-Confirm procedure in case conduit penetrates fire rated wall or acoustic wall.	Comments Incorporated	
11-Readable stamped approved shop drawing to be available during installation and inspection.	Comments Incorporated	
12-Oirgin stamped delivery note to be attached with inspection request for material.	Comments Incorporated	
13-Chick list for material delivery to be filled(support document)	Comments Incorporated	
14-WSA Arch, approval for wall/ceiling to be attached with electric inspection request.	Comments Incorporated	

Consultant Comments Clarification

15-Inspection check list to be adjusted as per the above comments and resubmitted.	Comments Incorporated	
SAFETY COMMENTS:-		
1-provides adequate and appropriate PPE for the workers and maintains close safety supervision.	Comments Incorporated	
2-Proper scaffold with inspection tag and access ladder must be provided.	Comments Incorporated	
3-Not allowed for anybody to stand at the top of the step ladder and the worker should stand two rungs below from top of the step ladder.	Comments Incorporated	
4-Coworker must hold the step ladder while working with it.	Comments Incorporated	
5-ELCB must be used in the temporary panel boards for electrical connections.	Comments Incorporated	
6-Use industrial connectors/sockets for power cable connections.	Comments Incorporated	
7-Do not allow working in live power cables / equipments or providing non conductive tools and non conductive PPE.	Comments Incorporated	
8-Always maintain proper housekeeping and cleanliness in work area.	Comments Incorporated	
9-Should not allow to work inside the shaft without work permit and supervision.	Comments Incorporated	
10-Proper lights and ventilation in work area to be provided.	Comments Incorporated	

Project: Central Market Abu Dhabi
General Submittal: 9782
Title: ACC-DAR-3565-REV.0 PG- METHOD STATAMENT FOR THE INSTALLATION OF GI CONDUITS & ACCE

COPY

General Submittal

Document Designation:

No.	Description/Title	Document No./Revision	No of Copies	Status			
1	METHOD STATAMENT	25-MS-EL-PG-0003-REV.0	1	O A	● B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E
				O A	O B	O C	O E

Comments:

Please refer to WSA comment attached and BDSP comments in Public Comments section.

Key) A - Proceed No Comments - B - Proceed with Comments - C - Rejected - E - For Information

Attachments

Title	Attached By	Status
ACC-DAR-3565-REV.0 ATTACH.pdf	Minhas Cherukulathil	-
ACC-DAR-3565-REV.0.pdf	Minhas Cherukulathil	-

Business Process Status

From: Kathryn Guerrero (John Robertson Architects) , Reviewer **Action Taken:** Send to Initiator

Action Required: Review Response **Activity Due Date:** 30/08/2010 01:50 PM

Note: Please refer to WSA comment attached and BDSP comments in Public Comments section.

THERMO ثيرمو
10:10 am
22 SEP 2010
RECEIVED

Distribution:

PD ☐ IB ☐ PO ☐ TL ☐ MM ☐ SB ☐ | T1 - IA ☐ DS ☐ RTL - EY ☐ MS ☐ AA ☐ QC ☐ BH - FY ☐ QC ☐

AK ☐ MR ☐ MH ☐ OTHERS ☑ Thermo | T2 - MA ☐ AR ☐ SA ☐ T3 - SD ☐ SS ☐ ED ☐

COPY issued on 28-09

Project: Central Market Abu Dhabi
General Submittal: 9782
Title: ACC-DAR-3565-REV.0 PG- METHOD STATAMENT FOR THE INSTALLATION OF GI CONDUITS & ACCE

Public comments Details

FW: ACC-DAR-3565-REV.0 PG- METHOD STA...

To: Dejan Curcic (BDSP Partnership)
Date: 21/09/2010 01:35 PM
Made Public by: Kathryn Guerrero (John Robertson Architects) **Workflow Activity:** Reviewer
From: Dejan Curcic (BDSP Partnership)
In Response to: Kathryn Guerrero (John Robertson Architects)
Sent: 21/09/2010 12:20 PM
Subject: FW: ACC-DAR-3565-REV.0 PG- METHOD STATAMENT FOR THE INSTALLATION OF GI CONDUITS & ACCESSORIES

Note:

Reply: For method statement of MEP equipment and material installation refer to WSA comments. MEP equipment and material installation shall be in accordance with the manufacturer recommendations.

Method statement for inspection and testing to be submitted separately.

BDSP approval on materials mentioned in the submitted method statement and testing and commissioning of the same shall not be inferred from this review. This is subject of a separate submittal review processes.
Include the following sentence in paragraph 6.5 (quoted from the Specification):
"All sets and bends in conduit runs shall be formed on site in bending machines. Manufactured bends shall not be permitted."

Method statement is received for information only.

BDSP Status: E

List of Comment Attachments:
DAR-3565 R0 WSA comment.docx (12783 KB)
DAR-3565 R0 WSA comment.docx (Binder)
(Business Process)

DAR-3565 R0 M.S FOR G.I CONDUIT

SITE SUPERVISION COMMENTS CODE B

1. Installation to be done as per (approved material , approved coordination drawing, approved layout shop drawing ,approved installation details ,approved mock up)
2. Adjust QA/QC engineer to QA/QC electric engineer.
3. Exposed conduit in public area to be painted as per Arch., approval.
4. Adjust the inspection check list for work and material action code to A, B, C.
5. Adjust ITP ITEM 2, 3, 4 to be visual and dimensional.
6. Confirm procedure for fixation material (which not yet submitted) especially in case fixed on hollow block/gypsum board....etc
7. All boxes to be accessible for maintenance purpose.
8. All boxes and conduit to be identified as per specifications.
9. IP rating to be considered if installation done in wet area.
10. Confirm procedure in case conduit penetrates fire rated wall or acoustic wall.
11. Readable stamped approved shop drawing to be available during installation and inspection.
12. Origin stamped delivery note to be attached with inspection request for material.
13. Check list for material delivery to be filled(support document)
14. WSA Arch., approval for wall/ceiling to be attached with electric inspection request.
15. Inspection check list to be adjusted as per the above comments and resubmitted.

SAFETY COMMENTS CODE B

1, Provide adequate and appropriate PPE for the workers and maintain close safety supervision.

2, Proper scaffold with inspection tag and access ladder must be provided.

3, Not allowed for anybody to stand at the top of the step ladder and the worker should stand two rungs below from top of the step ladder.

4, Coworker must hold the step ladder while working with it.

5, ELCB must be used in the temporary panel boards for electrical connections.

6, Use industrial connectors/sockets for power cable connections.

7, Do not allow to work in live power cables/equipments or provide non conductive tools and non conductive PPE.

8, Always maintain proper housekeeping and cleanliness in work area.

9, Should not allow to work inside the shaft without work permit and supervision

10, proper lights and ventilation in work area to be provided.

Incorporate the above comments in the statements and resubmit

ALDAR | ATKINS Middle East & India

CENTRAL MARKET REDEVELOPMENT

Document Approval Request - DAR

ACC ARABIAN CONSTRUCTION CO

For the Attention of:

WS ATKINS

9782

DAR No: 3565 Rev.

We are forwarding herewith for your approval the Document as described under

Document No	Originator	Type of Document	Discipline	Building Code	Number	Revision
	25	MS	EL	PG	0003	0

Sheets: 1 + 12

Submitted For Approval ☑ Information ☐ Submittal Date: 04/08/2010

Submitted By 1- ACC ☐

Contact Person

2- Sub- Contractor / Supplier ☑

Name: Thermo LLC

Tel: 02/ 6218232 Fax: 02/ 6218234

E-Mail: thermoad@emirates.net.ae

Type of documents

1- Pre-Qualification	☐	5- Schedules & Programms	☐	9- Non- Conformance report	☐
2- Monthly Reports	☐	6- Test Records	☐	10- O & M Manuals	☐
3- Design calculation	☐	7- QA / QC Document	☐	11- Others: (Specify)	☐
4- Method Statement	☑	8- Health & Safety	☐		

Discipline

Architectural	☐	Structural	☐	Mechanical	☐	Others	☐
Civil	☐	Electrical	☑	Plumbing	☐		

Document Title

METHOD STATAMENT FOR THE INSTALLATION OF GI CONDUITS & ACCESSORIES

ACC Review & Approval

	Prepared By:		Reviewed by	Approved By:
Name:	Yassir hassan (Thermo LLC)	Antoine Kalach	Geoff Bottomley	Saeed Mihjazi
Designation:	QA/QC Manager	MEP Manager	HSE Manager	Sr. Project Quality Manager
Signature:		pp.		
Date:	04/08/2010	19/08/2010		19/08/11

ACC
ARABIAN CONSTRUCTION CO.

THERMO ثيرمو L.L.C. ذ.م.م

Central Market Re – Development
Method Statement for GI Conduits & Accessories Installation

Document No					Date:
Originator Code	Specification No	Discipline	3 Digit SR No	Rev	26–DEC–2010
25	6200	EL	0001	1	

List of Attachments

No	Reference	Description
1.	RISK/EL/0001	Safety Risk Assessment
2.	ITP/TH/EL/0001	Inspection & Test Plan
3.	ICL/TH/EL/0001	Installation Check List
4.		Material Inspection Request
5.		Emergency Rescue Plan

Revision History

Rev No	Date	Prepared By	Reviewed By	Approved By	Description
0	04/08/10	Eng. Salvador Elect. Engr.			Issued For Approval
1	26/12/10	Engr. Reagan QA/QC Engr.	Yassir Hassan QA/QC Manager	Roger Chakar Project Manager	Revised

CONTENTS

1. SCOPE

1.1 This "Method Statement" covers the nature and type of work for the GI Conduits & Accessories installation for the following systems as applicable:

1.1.1 Lighting
1.1.2 Small Power
1.1.3 Data & Voice (telephones)
1.1.4 Security
1.1.5 Access Control
1.1.6 Electrics to Mechanical Services
1.1.7 BMS/Automatic Control

1.2 Any other systems not mentioned here will be covered in a separate method statement as per site requirements for the Central Market – Retail project.

1.3 This statement also covers frequency of which the inspections are to be carried out.

2. REFERENCES

2.1 Thermo Project Quality Plan and ACC Project Quality Plan

2.2 Project Specification:

2.2.1 Package 6200 Volume – 3 Electrical Services, Section 21.1.1
2.2.2 Relevant Local & International Standards

2.3 Approved Material Submittals & Manufacturer Recommendations

2.4 Approved Shop Drawings, Coordination Drawings, Installation Details & Site Mock-up

3. RESPONSIBILITIES

Note: Safety is the responsibility of everyone involved in these work activities.

3.1 PROJECT MANAGER

3.1.1 Have full authority and overall responsibility to manage, supervise, control the works and have direct responsibility for ensuring safe working practices and compliance with regulatory authorities' requirements, co-ordinate with engineers and ACC for execution of the Contract Scope of Works. Implement the project quality systems to be to the satisfaction of the project requirements. Review changes and Variations to evaluate impact of those on time and schedule.

3.2 ELECTRICAL ENGINEER

3.2.1 Responsible for ensuring that all works are carried out as per the specifications, approved shop drawings and Method Statement as per the manufacturer instructions and coordinated with other works.

3.3 QA/QC ENGINEER (ELECTRICAL)

3.3.1 Responsible for monitoring the works are in fulfillment with the specified requirements that all quality records related to the works are complete.

3.3.2 Ensure that all installations to be done are as per approved material, approved layout shop drawing and coordination drawings, approved installation details, and approved mock-up.

3.3.3 Coordinate and carry out all the inspections with the ACC QC Engineers and consulting Engineers.

3.4 SURVEY ENGINEER (FROM ACC)

3.4.1 Responsible for providing levels and reference benchmark needed for the project (Reference Datum only).

3.5 SITE ENGINEER

3.5.1 Co-ordinate all the site activities according to work schedule, installation according to the Project Specifications, Manufacturer Data Sheet and approved shop drawings.

3.5.2 Liaise with site representatives of Consulting Engineer and ACC and coordinate safety procedures with site supervisors and site foremen.

3.5.3 Shall Co-ordinate and explain the work to be carried out to the Supervisors / Site Foreman.

3.5.4 Ensure the compliance of works with the related approved Quality Control Procedure and co-ordinate with Thermo QA/QC Engineer to advise for the areas to be issued for inspection.

3.6 SITE SUPERVISORS AND SITE FOREMEN

3.6.1 The project team of experienced Supervisors and Foremen shall ensure the quality of the installation work carried out, and shall also ensure that it is as per the latest approved shop drawing issued for installation and according to instructions received from the Site Engineer.

3.6.2 Provide their subordinates (charge hand and skilled labours) adequate information to carry out their duties.

3.6.3 Ensure that he has adequate resources of machinery, labour and materials to carry out all the activities efficiently and to discuss with the Site Engineer.

3.6.4 Ensure safe and clean working environment to enforce a safe working habit.

3.6.5 The implementation of the procedures mentioned in method statement will be carried out by site Supervisor.

4. TOOLS & EQUIPMENTS

4.1 Power saw
4.2 Jig saw
4.3 Hand tool set
4.4 Manual Bending machine
4.5 Manual threading machine
4.6 Drilling Machine
4.7 Hammer
4.8 Sprit Level
4.9 Leveling Instrument
4.10 Fixing tools
4.11 Mobile Scaffolding

5. SURVEYING EQUIPMENTS AND INSTRUMENT CHECKING & CALIBRATION

5.1 Benchmark lines and levels to be provided by ACC (Reference Datum only).

5.2 All Instruments shall be checked and calibrated to ensure accuracy before using at site.

6. WORK SEQUENCES

Note: All documentary requirements for this purpose shall be submitted for approval and this shall include Manufacturers data, certificate of compliance, brand designation, type and class including samples.

6.1 PREPARATION AND SUBMISSIONS

6.1.1 All materials intended for GI Conduits & Accessories shall be submitted for approval of the Consulting Engineers as specified in the contract specifications.

6.1.2 Materials sample will be provided if requested by the Consulting Engineers.

6.2 PROCUREMENT OF APPROVED MATERIALS

6.2.1 After the approval of Material's Submittal, the approved materials shall be procured in accordance with the schedule requirement for installation. This material will be subjected to receiving and inspection by discipline engineers to provide confidence that quality of materials delivered to site are in accordance with the Project Specification & consultant/client comments on the material submittal (if any).

6.2.2 Materials will be procured as per the Approved Materials Submittal.

6.3 DELIVERY AND INSPECTION OF MATERIALS

6.3.1 Upon delivery of materials, the storekeeper, together with Thermo QA/QC Engineer shall inspect the deliveries to verify conformity with the contract and purchase order requirements and Project Specification. Upon successful inspection, Material Inspection Request to be forwarded to ACC QA/QC Engineer and Consulting Engineer along with stamped delivery note and supporting documents attached. Any rejected material delivered shall be immediately removed and replaced in order not to alter progress schedules.

6.3.2 Storage of materials shall be as per manufacturer's safety data sheet recommendation and project requirement. Extreme care in handling should be exercised in handling of the GI Conduits & Accessories materials. Also, Manufacturer Recommendation for lifting and shifting will be taken in consideration.

6.3.3 All GI Conduits & Accessories materials shall be free of rust patches or other defects on delivery and protected from mechanical damage and weather when stored on site.

6.4 PREPARATION FOR CABLE & LADDER TRAYS & TRUNKING INSTALLATION

6.4.1 Start of Electrical system installation shall be done in accordance with approved shop drawings and properly coordinated with ACC Site Engineer's for the exact locations and levels. The mark on site to be carried out prior to commencement of installation works.

6.4.2 Plan ahead and ensure all containment to be accessible for future maintenance purpose.

6.5 SHAFT PREPARATION

6.5.1 In shafts, riser works are carried out over temporary working platforms which are installed at every floor level.

6.5.2 Separate safety / emergency rescue plan with procedures is attached.

6.5.3 Site Supervisor/ Safety Supervisor to check proper lighting and ventilation availability before starting of any works.

6.5.4 Ladders / scaffoldings to be secured firmly over the working platform and inspected and (Red/Green) tagged "Safe" by competent person, prior to start of work.

6.5.5 Site Supervisors to keep check of working technicians in risers in regular intervals.

6.6 INSTALLATIONS

6.6.1 Ensure the sleeves and box outs are as per approved shop drawings and specification, during the construction of structural elements.

6.6.2 Approved make GI Conduits & Accessories will be used. All sets and bends in conduit runs will be formed on site using bending machines. Manufactured bends shall not be permitted.

6.6.3 Set out the level and location of junction boxes as per benchmark lines and levels already provided by ACC surveyor, approved shop drawing and material submittals. IP Rating to be considered if installation done in "wet" areas.

6.6.4 Ensure that all the boxes and conduits are installed in level and rigidly supported by fisher screw and "U" clamp or saddles along with slab, columns and walls. All boxes and conduits to be accessible for maintenance purposes.

6.6.5 Provide pull boxes for the easy wire pulling, and distance shall be maintained for pull box location as per specifications. Make sure pull boxes are identified in approved shop drawings.

6.6.6 Conduits will be installed exposed along with slabs, columns and walls in all plant rooms and concealed in block walls of retail shops.

6.6.7 Install approved fixation materials for GI Conduits & Accessories as per specification, approved shop drawings and site requirements for each individual case (i.e. on Slab, Wall etc.).

6.6.8 In case of block walls, set out the proper location and conduit routing on the block walls as per Specifications and approved shop drawings.

6.6.9 Cut the block walls with appropriate power tools in the marked area as per approved shop drawing.

6.6.10 Chip the area with chisel, approximately 50mm to accommodate respective conduits to be imbedded.

6.6.11 Cement / mortar bed shall be provided to prepare a smooth and uniform groove in the cut portion of the block.

6.6.12 Fix conduits in between concrete nails in block wall and tie with binding wire rigidly to avoid change in conduit layout. After installation inspection approval, finish with concrete cement, plastered flush with the wall surface.

6.6.13 Conduit boxes shall be installed in the block walls as per Specifications and approved shop drawings.

6.6.14 Ensure the correct level; alignment and the boxes are plumb.

6.6.15 Back boxes shall be confirmed for similarity and or correct level, height with reference to finish floor via reference datum provided by ACC surveyor to avoid reworks at inspection.

6.6.16 Height shall be maintained from the finish floor levels for the boxes as per Specifications and approved shop drawings.

6.6.17 Apply the concrete plaster around the box and allow the plaster to harden before conduit connection starts.

6.6.18 Protection of boxes shall be made by a piece of polystyrene ("thermocool") inside the boxes having exactly the size of boxes and projecting out of the box. Length of the projection shall be maintained equal to the level of finishing wall surface.

6.6.19 Ensure the location and quantities of boxes are as per approved shop drawings.

6.6.20 Ensure that the boxes are not located at more than 15mm depth with respect to finish wall surface.

6.6.21 Boxes shall not be installed back to back in walls.

6.6.22 Position recessed outlet boxes accurately to allow for surface finish thickness.

6.6.23 In case of gypsum boards, expansion bolts ("unifix" butterfly type) will be drilled and approved fixation materials (saddles & clamps) for conduits to be secured on these bolts.

6.6.24 Conduits routing shall be as per approved shop drawings and coordinated to other services and coordinated with Architect/Structural Layout drawings.

6.6.25 In case the approved routing is not valid, alternative routing will be determined. Routing will be shifted as coordinated with other services as per site conditions. Installation will commence upon approval of the proposed alternative route.

6.6.26 Approved sleeves shall be provided and interrupt conduits passing through a floor, acoustic wall or fire rated wall. Sleeves shall be sealed with approved materials (rock wool and mastic).

6.6.27 Make sure that all surface mounted conduits shall be truly horizontal, vertical and parallel to the building lines and conduits outlets shall be temporarily sealed. Before cables are drawn in the conduits seal shall be swabbed out until they are dry and clean.

6.6.28 Surface conduit in rooms housing batteries shall be painted with two coats of anti-sulphuric enamel after installation.

6.6.29 Make sure conduits exposed in public areas will be painted as per Architect approval.

6.6.30 Where conduit runs terminated in cable trunking or in boxes the termination shall be made with flanged coupling.

6.6.31 Where conduits pass over expansion joints of building construction, suitable expansion joints shall be fitted in the conduit run.

6.6.32 Make good any superficial damage to the finish of all conduits, by painting with galvanize paint.

6.6.33 Identification tagging/labeling will be fixed on boxes & conduits as per specifications and approved shop drawings.

7. INSPECTION & TEST PLAN

7.1 The engineer should verify that the supervisor/foreman with construction responsibilities for installation is familiar with this method statement and is issued with copies of the inspection checklists and test plans.

7.2 The engineer should satisfy the procedures provided by QA/QC inspections to ensure the as-installed condition of the GI Conduits & Accessories installation meets the specified engineering requirements and approved drawings.

7.3 As part of the assessment, the QC Inspection Procedures must ensure a quantitative or qualitative acceptance criteria for determining the prescribed activities have been accomplished satisfactorily.

7.4 The QC inspection personnel, in coordination with Site Supervisor, should verify that the quality of the related GI Conduits & Accessories installation activities is within the prescribed criteria.

7.5 The Supervisor should verify any as-built record of GI Conduits & Accessories installation, and confirm that the information meets the project requirements.

7.6 Quality Control Engineer along with Project Engineer and Site Supervisor will monitor that all components are installed as per contract specifications and approved submittals.

7.7 Request for Work Inspection Request (WIR) shall be submitted by Site Engineer to Thermo QA/QC Department for verification and inspections.

7.8 Thermo QA/QC Department will forward WIR to ACC QA/QC for inspection and approval in accordance with ITP.

7.9 Readable stamped approved drawing to be available during installation and inspection.

7.10 WSA Arch., approval for wall/ceiling to be attached with WIR.

7.11 All the equipments engaged for testing shall have a valid calibration and certificate should be furnished.

8. SAFETY & RISK ASSESSMENT

8.1 A task based risk assessment and mitigation strategy is summarized in the attached table. Work will commence as per safety regulations laid down in the contract specification and project safety plan.

8.2 Safety gears shall be used. All personal protective equipment shall be used as appropriate according to the nature of the job. For electrical works, provide non-conductive tools and PPE.

8.3 Working on live power cables/equipment is not allowed. ELCB shall be used in temporary panel boards; industrial connectors/sockets for temporary power cable connections.

8.4 Always maintain cleanliness in work areas. Housekeeping shall be of good standard and all cut pieces and debris shall be removed by the end of workday.

8.5 Ensure that all lifting operations are carried out as per approved procedures and safety regulations.

8.6 Ensure that adequate barricade and signage "DANGER KEEP-OUT, HEAVY LIFTING IN PROGRESS" is provided around the affected area. Work will be executed through Permit to Work system.

8.7 All scaffoldings shall be checked by competent person and should carry green tags "safe to use", prior to use for working purpose.

8.8 All plant tools tackles will have valid certificate. Lifting machines, appliances and gear to be examined by qualified rigger and come with valid certification.

8.9 Workers working at height to wear their full body harness and should be anchored to a rigid point.

8.10 Nobody is allowed to stand on the top of the step ladder; worker should stand two rungs below from top of the step ladder. A co-worker must hold the step ladder while in use.

8.11 Work inside shafts are not allowed without work permit and supervision. Work areas to be provided with proper lighting and ventilation at all times.

8.12 Store tools and equipment and unused materials stacked in a safe area at the end of the workday.

8.13 Method statement / risk assessments to be briefed to all concerned personnel and signed as read /understood.

9. ATTACHMENTS

9.1 Safety Risk Assessment – Risk/EL/0001

9.2 ITP for Installation GI Conduits & Accessories. ITP/TH/EL/0001

9.3 Check list for Installation GI Conduits & Accessories.ICL/TH/EL/0001

9.4 Material Inspection Request Form

9.5 Emergency Rescue Plan

8.0 HAZARD IDENTIFICATION AND RISK ASSESSMENT SHEET

Hazard Identification & Risk Assessment Sheet for	**GI Conduits & Accessories Installation**
Project: CENTRAL MARKET REDEVELOPMENT – RETAIL AND KHALIFA BRIDGE	**Ref No: Ref: Risk-EL-0001**

Item	Process	Hazard	Risk Assessment (No Control)			Controls	Risk Assessment With Controls		
			P	S	R		P	S	R
1.	**General Site Requirements**					1. All the Employees coming to the Project (including the Visitors, Drivers. Etc…) must attend the Safety Induction Training conducted by both Thermo and ACC safety team. 2. Ensure a Safe Working Area that include but not limited to; Appropriate Access and Egress, Adequate Lighting and Ventilation, Appropriate Working Platform, etc… 3. Arrange the appropriate PPE's and ensure its correct usage by the worker while working. 4. Wear the appropriate PPE's in addition to the Basis PPE's that includes the hard hat, high visibility jacket, overall and safety shoes. 5. Arrange appropriate power tools and hand tools. 6. Ensure Adequate Power Supply through an Isolating Device. 7. Maintain Housekeeping "Everything has a place and everything in its place". 8. Site engineer to ensure the compliance with the safe system of work procedures and arrange the resources. Supervisor/ Foremen will closely supervise all operations and Site Safety team will monitor the activity. 9. Inform all the Accidents and Near Misses to the Safety Team without any time delay. 10. Follow the Emergency Rescue Procedures in case of an emergency (See the attached Emergency Rescue Plan). 11. Get the awareness about the location of First Aid Clinic, Fire Points and the Nearest Assembly Points prior to start the work. 12. Get the Permit to Work before work commences if it is required as per the ACC Site Safety Rules and Regulations. 13. Always remember "You alone be responsible for your action; so if in doubt ask your supervisor and do not put yourself at danger".			

8.0 HAZARD IDENTIFICATION AND RISK ASSESSMENT SHEET

Hazard Identification & Risk Assessment Sheet for	GI Conduits & Accessories Installation
Project: CENTRAL MARKET REDEVELOPMENT – RETAIL AND KHALIFA BRIDGE	Ref No: Ref: Risk-EL-0001

Item	Process	Hazard	Risk Assessment (No Control)			Controls	Risk Assessment With Controls		
			P	S	R		P	S	R
2.	**Down load/transport of material's to work area**	Fall down of material, Collision of the Vehicle while transporting the Pipes to the Site, Manual Handling (Work Related Upper Limb Disorder – WURLD),	3	3	B	1. Ensure a safe manual handling procedure while shifting the materials manually. 2. All the workers must wear appropriate hand gloves when carrying out the materials. 3. Ensure an adequate passage way. 4. Close Supervision by the Responsible Supervisor/ Foreman needed throughout the activity. 5. Keeps the materials in a safe place (do not block any access) if the pipes are storing temporarily on the site and it must be segregated with warning Tapes. 6. Someone must control the vehicles while passing through the Vehicle access.	1	3	D
2.	**Working at height**(including risers in shafts)	1. Falls From Height 2. Falling Materials 3. Collapse of structure.	3	3	B	1. Ensure an appropriate working platform with appropriate access, egress, and guard rails, etc… 2. One Competent employee must supervise the erection of the scaffolding and he must tag it prior to start the work. 3. Responsible Site Supervisor/ Foreman must ensure that the Ladders, scaffoldings and other working platforms must be rigidly secured prior to installation work. 4. Supervisor/ Foreman needs to explain the hazards and precautions that are mentioned in this Risk Assessment to the operatives prior to start the work and ensure that they were understand it properly. This training attendance sheet and Risk Assessments must keeps in the Working Area. 5. Safe & Secure work platforms shall be provided and safety harness (without shock absorber pack on the lanyard until 5 meter height) will be utilized at all times and that must be clipped on to a rigid point. 6. Maintain a good standard of Housekeeping throughout the activity and dispose all the waste and scrap materials on the Designated Waste	2	2	D

8.0 HAZARD IDENTIFICATION AND RISK ASSESSMENT SHEET

Hazard Identification & Risk Assessment Sheet for	GI Conduits & Accessories Installation
Project: CENTRAL MARKET REDEVELOPMENT – RETAIL AND KHALIFA BRIDGE	Ref No: Ref: Risk-EL-0001

Item	Process	Hazard	Risk Assessment (No Control)			Controls	Risk Assessment With Controls		
			P	S	R		P	S	R
						Collection Areas. 7. Overhead safety canopy must be provided (if applicable) if ever other workers are working directly above their working area and sufficient light must be provided. 8. Do not use an A Frame Ladder for Heavy duty works. 9. Ensure the ladder is safe to use (free from damage and appropriate for the working area and activity). 10. Do not allow anyone to climb on the top most two steps and sit on the top. 11. Must have one worker hold the ladder while someone working at height. 12. Do not use an A frame ladder near to the slab edges, riser openings, and shafts unless it is secured sufficiently. 13. Before start doing any work at height inside the riser's or shaft's: the work in charge must get a written permission from Thermo and ACC Safety Department, ensure an appropriate working platform which is having a valid inspection tag, all the operatives must be trained and competent, appropriate PPE's must be issued and ensure its correct usage while working, ensure adequate lighting and ventilation, ensure no one else working on the same riser in any other levels (top and bottom), Competent supervision is mandatory throughout the work activity, etc…			

8.0 HAZARD IDENTIFICATION AND RISK ASSESSMENT SHEET

Hazard Identification & Risk Assessment Sheet for	GI Conduits & Accessories Installation
Project: CENTRAL MARKET REDEVELOPMENT – RETAIL AND KHALIFA BRIDGE	Ref No: Ref: Risk-EL-0001

Item	Process	Hazard	Risk Assessment (No Control)			Controls	Risk Assessment With Controls		
			P	S	R		P	S	R
3.	**Use of Power Tools**	1. Electric shock, burns and possible death 2. Trip hazards resulting in severe injuries 3. Fire 4. Hearing impairment due to noise 5. Excessive vibration and / or noise 6. Poor working posture	3	3	B	1. Arrange the correct tools for the job (do not try to improvise). 2. All power tools, equipments, and power leads are to be inspected by the competent electrician for the damage prior to start the work. 3. Damaged tools and cables to be discarded. 4. Ensure an adequate power supply through an isolating device. 5. Daily task briefing will be conducted by the trade foreman 6. Ensure proper cable management. 7. power tool and equipment operatives to be competent enough 8. Any repair or maintenance should be carried out by the competent electrician only 9. Supervisor/ Foremen will closely supervise all operations 10. Appropriate PPE's to be arranged and ensure its correct usage. 11. Keep the tools in a safe place after usage. 12. Always physically remove the supply connection suddenly after the usage. 13. Do not use the leads to lift the tools. 14. Never ever keeps any tools at height that means on top of MEP Services.	2	2	D
4	**Manual Handling**	1- Strains. 2- back pain, 3- Cuts. 4- Falls. (Work Related Upper Limb Disorder - WRULD)	3	3		1. Labour will be allowed to keep tools and material in a safe place by the end of working day. 2. Workers to keep the working area clean at end of each work day. 3. No smoking and fire extinguisher always near the working area. Flammable materials should be stored in a safe place and away from any heat generating equipment. 4. The workers must wear proper hand gloves when carrying out the materials.	2	2	D

8.0 HAZARD IDENTIFICATION AND RISK ASSESSMENT SHEET

Hazard Identification & Risk Assessment Sheet for	**GI Conduits & Accessories Installation**
Project: CENTRAL MARKET REDEVELOPMENT – RETAIL AND KHALIFA BRIDGE	**Ref No: Ref: Risk-EL-0001**

Item	Process	Hazard	Risk Assessment (No Control)			Controls	Risk Assessment With Controls		
			P	S	R		P	S	R
5.	**Tools, Slips, Trips and falls**	falls of Tools and material	3	3	B	1. Always keep the access / egress clean and tidy. 2. Proper housekeeping has to be maintained to avoid slip, trip and falls. 3. Proper PPE shall be used. 4. All wastes shall be removed and disposed immediately from the working area. 5. All live Equipments shall be protected and live cables should be properly secured. 6. Ensure the supply leads will cause a trip hazard. 7. Materials shall be properly stacked and should not obstruct the walk way and exit doors.	2	2	D

When completing this Performa you must take due consideration of local conditions, including adjacent operations and premises.

Person Responsible for Completing the Risk Assessment:

Name	Shamnas.P.S	Position	Safety Manager		
Signature		Date	26/12/2010	Review Date	

Probability (P) X Severity (S) = Risk

1	= Unlikely	**1**	= Negligible
2	= Low	**2**	= Minor Injury
3	= Medium	**3**	= Severe Injury
4	= High	**4**	= Fatal

Risk Level (P/S)				
	S1	S2	S3	S 4
P1	X	X	D	C
P2	X	D	C	B
P3	D	C	B	A
P4	D	B	A	A

Conclusions:

A	=	Hazard MUST be avoided (or level of risk reduced significantly & reliably by controls)
B	=	Hazard SHOULD be avoided (or level of risk reduced significantly & reliably by controls)
C	=	Risk to be controlled as far as reasonably practicable
D	=	Risk is controlled as far as reasonably practicable
X	=	Normal PPE to be worn as dictated by ACC policy

ALDAR | ATKINS Middle East & India

CENTRAL MARKET RE-DEVELOPMENT

INSPECTION & TEST PLAN

ACC ARABIAN CONSTRUCTION CO. | THERMO ثيرمو L.L.C

Title : INSTALLATION OF GI CONDUITS &ACCESSORIES

ITP Serial No : ITP/TH/EL/0001

P	G	-	A	0	-	0	0	0	1
Bldg			Floor			Serial No.			

Brief Description of the Element

No	Activity Description	Reference Documents	Type of Inspection	Acceptance Criteria	Verifying Records	Type Of Inspection & Acceptance Date / Initials						Report Reference No.
						Thermo QC		ACC QC		Supervision engineer		
						Date	Initial	Date	Initial	Date	Initial	
A	**Material Delivery and inspection**											
1	Delivery of GI Conduits & Accessories	D.O List and Approved material submittal	Visual Inspection	Prior to commencement of electrical Installation	Approved MIR		H		S		S	
2	Proper storage	Manufacturer's recommendations	Visual Inspection	No damage material, dust and dirty protection and proper cover. Not over stacking.			W		S		S	
3	Material Inspection	D.O List and Approved material submittal	Visual/ Dimensional	As per material Approval			H		W		W	
B	**Installation**											
1	Size & Type of GI Conduits & Accessories selection	As per Approved shop drawings	Visual/ Dimensional	Visual check satisfactory, proper size fitting free of damages.	Approved WIR		W		S		S	
2	Location and route of GI Conduits & Accessories installation	As per Approved shop drawings	Visual/ Dimensional	Visual check satisfactory, No clashing with other services, boxes at correct level, square & plumb.	Approved WIR		W		S		S	
3	GI Conduits & Accessories installation of fixation materials Expansion joints, Fire stop & identification	Manufacturer's recommendation Package 6200 Vol.3	Visual/ Dimensional	Visual check satisfactory, fixation materials is rigid and as per approved submittal, expansion joints provided where required, fire barrier continuous, identification done in proper way.	Approved WIR		W		S		S	

LEGEND : S = Surveillance W = Witness Inspection H = Hold Point for Inspection R = Record Review

THERMO QC ENGINEER Date & Signature	ACC QC ENGINEER Date & Signature	SUPERVISION ENGINEER Date & Signature

4	Installation of GI Conduits & Accessories embedded in block wall and surface mounted in gypsum boards	Manufacturer's recommendation Package 6200 Vol.3	Visual/ Dimensional	Visual check satisfactory, fixation materials is rigid and as per approved submittal	Approved WIR		W		S		S	
5	Final Inspection	Package 6200 Vol.3 Approved shop drawing	Visual/ Dimensional	Snag-list will be produced by ACC and will be immediately rectified. Thermo after completion of any rectification works will close-out the snag-list.	Approved WIR		W		H		H	

LEGEND : S = Surveillance W = Witness Inspection H = Hold Point for Inspection R = Record Review

THERMO QC ENGINEER Date & Signature	ACC QC ENGINEER Date & Signature	SUPERVISION ENGINEER Date & Signature

ALDAR ATKINS Middle East & India

CENTRAL MARKET RE-DEVELOPMENT

INSPECTION CHECK LIST

ACC ARABIAN CONSTRUCTION CO.

THERMO ثيرمو LLC

Title : INSTALLATION OF GI CONDUITS & ACCESSORIES

ICL Serial No :ICL/TH/EL/0001

P	G	-	A	0	-	0	0	0	1

Bldg Floor WIR Serial No.

Location & Description

No	Specified Criteria	Thermo QA/QC		ACC QC		Supervision Engineer		Remarks
		Date	Initial	Date	Initial	Date	Initial	
	A. Material Inspection							
01	Ensure all Material Inspection Request are approved.							
02	Check all delivered materials are as per approved Material Approval Request.							
03	Make sure all delivered materials are new and there is no physical damage. Defective materials if any shall not be accepted on site.							
04	Approved materials stored in well lit, dry areas, off the floor and protected from the elements.							
	B. Installation Inspection							
05	Check all the boxes and conduits are installed level , plumb and rigidly supported							
06	Check all surface mounted conduits shall be truly horizontal, vertical and parallel to the building lines							
07	Check pull boxes are provided and distance maintained for pull box location as per specifications.							
08	Check all box locations are correct as per approved shop drawing.							
09	Check "U" clamp or saddles supports is rigidly installed.							
10	Check all boxes are fixed at correct level as per approved drawings							
11	Check pull boxes are provided on conduit runs over 15m.							
12	Check pull boxes are identified in approved shop drawings.							
13	Check all conduit boxes installed in correct level, aligned as per approved shop drawing.							
14	Check the location and quantities of boxes are as per approved shop drawings.							
15	Check no boxes installed back to back in walls.							
16	Check conduit runs terminated in cable trunking or in boxes the termination are made with flanged coupling.							

17	Check suitable expansion joints are fitted in the conduit runs passing over expansion joints of building construction.							
18	Check tagging/labeling is fixed on boxes & conduits as per specifications.							
	C. Testing Inspection							
19	No testing required for this material.							

Comments :

Verification Of Above Items Release For Next Activity

THERMO QA/QC ENGINEER Date & Signature	ACC QA/QC ENGINEER Date & Signature	ATKINS SUPERVISION ENGINEER Date & Signature

ALDAR ATKINS Middle East & India

Central Market Re-development

Material Inspection Request (MIR)

ACC ARABIAN CONSTRUCTION CO.

MIR Number	Originator	Dsicipline	4 Digit SR No	Rev	Issuing Date:

Description of Material _____

_____

Materials Approval No _____

Quantities Received _____ **Date Received:** _____

Manufacturer's Name: _____

Suppliers Local Agent:

Location of Use	_____

Supporting Documents :

	PROVIDED : YES	/ NO
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

ORIGINATOR: **Name** _____ **Date** _____ **Sign** _____

ACC QA/QC Inspection

Notes / Comments : (if any)

_____

_____

_____

Name & Sign : _____ **Date :** _____

☐ **Conforming**

☐ **Non-Conforming**

☐ **Rejected**

Project: Central Market Redevelopment

Project No. C21004

Method Statement:- For Installation of GI Conduits & Accessories

Method Statement No.: EL-0001. Rev 1

EMERGENCY RESCUE PLAN

This rescue plan has been compiled in order to comply with CMR site safety requirements and for those who are working near open edges and over the shaft or during the installation of platform over the shaft. This is to be brought to the notice of those exposed to the risk of working at height and those supervising and managing the same work at height. In order to tackle any kind of emergency situation this requires immediate rescue personnel.

Thermo has identified rescue teams for each area at CMR site. This team is activated by Thermo Project HSE Manager in case of any emergency rescue situation and each crew plays their roles as detailed by using the first aid kit placed at CMR site and by coordinating with Main Contractor.

Thermo will arange adequate personnel for the traning in "Rescue from Height" from **BHS Safety Specialists**. The names and training details will be provided upon receipt of the certificate after completion of training.

Rollgliss Rescue Kit R250 will be provided on site. This kit is designed for the rescue of a worker left suspended at height after a fall. It consist of the following:

1. R250 Descender: Aluminum
2. Rope: 11mm nylon, minimum tensile strength 22.2kN
3. Extension pole: (telescopic) Aluminum, 1.2m to 5.0m
4. Anchorage strap: Polyester, 25mm width
5. Weight: 9kg (approximately)
6. Capacity: Evacuation and rescue of a person maximum weight 150kg
7. Compatability: Rollgliss R250 is designed for use with DBI-SALA approved components or systems
8. Standards: ANSI Z117.1, EN 341, EN 1496
9. Country of Origin: France

S. No.	Emergency Situation	Proposed Action Plan	Action Done By
1	Collapse of working platform over the shaft while operatives carry out their task on it or fall of operatives inside the shaft while he is fixing the platform and operatives suspended on body harness	Task in charge/supervisor/foremen/senior operative should inform area safety in charge with out any delay. Immediately seek medical assistance/support to conduct immediate mental risk assesment. Also, urgently determine the need to perform a rescue. Thermo Safety officer in charge has to relay the message to Thermo Project HSE Manager and ACC area safety.	Task in charge / supervisor / foremen / senior operative Medical/Safety Staff Thermo Safety Officer

S. No.	Emergency Situation	Proposed Action Plan	Action Done By
2	Fall from open edge and operative on body harness while working at open edge.	Thermo Project HSE Manager will activate/deploy the emergency rescue team and communicate this to ACC Project HSE Manager. Thermo Project HSE Manager has to relay message to Sr. Project Manager	Thermo Project HSE Manager
		Thermo Rescue Team (atleast 2 rescuers) will be mobilized immediately at the scene along with rescue kit. Upon reaching the scene, perform the rescue above the location where the person is suspended. If access to location for anchoring the system can be achieved without fall protection equipment, use this approach first. If fall protection is the only option, the suitably trained/competent person to work at height will put on an approved full body safety harness and commence the climb/descent to the location. The second person will wait at the bottom of the work area (next lower level scaffolding) to assist with the descent &/or instruct and direct medical support when it arrives, or to administer first aid. Keep verbal contact with the person suspended at all times. Maintain an understanding of his physical condition and determine if he is deteriorating. Try to get him to remain calm as possible, remind him to keep moving his legs and move into a position that is as comfortable as possible. Remove the suspended person from the situation as quickly as possible to reduce the chance of any impact from suspension trauma.	Thermo Rescue Team Thermo Rescuer Thermo Rescuer Assistant Rescuer/Thermo First Aider Thermo Rescuer Thermo Rescue Team
		Thermo Project HSE Manager has to relay message to Sr. Project Manager	Thermo Project HSE Manager

S. No.	Emergency Situation	Proposed Action Plan	Action Done By
		Thermo Project HSE Manager in liaison with ACC Project HSE Manager will arrange for local Emergency Services(Paramedics) and alert the site clinic.	ACC Project HSE Manager/Thermo Project HSE Manager
		Once casualty recovers the danger situation, he shall be immediately removed to site clinic. If paramedics reaches the site, they will examine him or he has to be sent to hospital for medical examination	Thermo Safety Team/ACC safety Team

RESCUE TEAM-Shaft area for the installation of the FF System

S. No.	Designation	Contact Number
1	Safety Officer	
2	Supervisor	
3	Task in Charge(Charge Hand)	
4	Foreman	
5	Administrator	
6	Driver	
7	First Aider*	

Note:- In case of emergencies Thermo Emergency Procedures also will be applicable, as it is a part of Project HSE Plan (Sec.14).

* First Aider can be any one of the Rescue Team.