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PROJECT:

METHOD STATEMENT:

HVAC DUCT WORK INSTALLATION

Signature:					
Name					
Dept.	QC Manager	Site Manager	QC Inspector	SAPID	SAPMT

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1.0 PURPOSE:

The purpose of this document is to describe how the installation of the HVAC Duct Work shall be undertaken in a safe manner as per project specifications and Saudi Aramco standards.

2.0 SCOPE:

The scope of this MS is to define all activities and requirements necessary to safely install the HVAC Duct Work during the construction stage of the project.

This covers Procedure for inspection during installation of all HVAC system components & all its accessories.

This procedure shall be used in conjunctions with applicable manufacturer's installation & maintenance instruction manuals.

3.0 ABBREVIATIONS:

M.S	Method Statement
ITP	Inspection & Test Plan
RFI	Request for Inspection
QC	Quality Control
QA	Quality Assurance
SAPID	Saudi Aramco Project Inspection Department
SAPMT	Saudi Aramco Project Management Team
SATIP	Saudi Aramco Typical Inspection Plan
SAIC	Saudi Aramco Inspection Checklist
SATR	Saudi Aramco Test Report
SAES	Saudi Aramco Engineering Standard
SAIP	Saudi Aramco Inspection Procedure
CSSP	Contractors Site Safety Program
HIP	Hazard Identification Plan
SMACN	Sheet Metal & Air Conditioning Contractors National Association
HVAC	Heating Ventilation & Air Conditioning

4.0 RESPONSIBILITIES:

- 4.1** SITE MANAGER – Prepare the Method Statement
- 4.2** QC MANAGER – Review
- 4.3** QC Inspector – Review
- 4.4** SAPMT – Review/Approve
- 4.5** SAPID – Review/Approve

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5.0 REFERENCES:

The following is a list of references which are applicable to the scope of this Method Statement.

5.1 International Codes:

SMACNA	Sheet Metal & Air Conditioning Contractors National Association
.	
ASHRAE	American Society Heating Refrigeration & Air Conditioning Engineers
.	
ASTM A 653/A 653M	Galvanized Sheet Steel (G90)
ASTM B 209	Aluminium sheets
UL 555	Factory Made Fire Dampers
ASTM A 53	Standard Specification For Seamless steel pipe & Fittings (Sech 40)
.	
ASME B 31.9(2004)	Building Service piping
NFPA 90A	Installation of air Conditioning & Ventilating system
UMC	Uniform Mechanical Code

5.2 Saudi Aramco Standards:

Schedule Q	Quality Requirement
SATIP-K-001-03	HVAC Metal Duct System
SATIP-K-001-04	Chilled Water Piping
SAIC-K-4008	Metal Duct, Hangers and Supports and Insulation Receiving
SAIC-K-4009	Air Terminal Devices, Volume Damper and Duct Heaters Receiving
SAIC-K-4010	Fire Damper Receiving Inspection
SAIC-K-4011	Duct System Handling, Storage and Preservation
SAIC-K-4012	Metal Duct Hangers and Support Installation
SAIC-K-4013	Metal Duct Installation
SAIC-K-4015	Metal Duct Insulation Installation
SAIC-K-4016	Volume Damper and Duct Heater Installation
SAIC-K-4017	Air Terminal Devices
SAIC-K-4018	Fire Damper Installation
SAIC-K-4020	Chilled Water Piping Lay-out and Support
SAIC-K-4021	3 Way Control Valve Arrangement (Chilled Water Lines)
SAIC-K-001	Heating & Ventilating & Air Conditioning
SAIC-K-100	Saudi Aramco Mechanical Codes

5.3 Drawing References:

WAG-BI-CDZ-M-000-101	Low level HVAC layout With Details
WAG-BI-CDZ-M-000-102	Mezzanine Level HVAC Layout With Details
CDZ-BI-SKETCH-HV-01	

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6.0 TOOLS / EQUIPMENTS:

Conventional tools and/or equipment will be used as necessary by the work procedures.

6.1 Tools / Equipment:

- Gloves
- Grinder Cutter
- Measuring tape
- Stanley knife
- Hilti Drill
- Step ladder
- Scissor Lift
- Mobile Tower Scaffold
- Hammer
- Adjustable Wrench
- Screw Drivers
- Scissor Lifts

6.2 Material

- Metal Duct
- supply & return duct aluminium cladding 0.6mm(In Mech. Room)
- Fiberglass supply duct Board insulation 25mm thick, 48kg/m3 density
- Flexible duct
- Units flexible connectors
- Volume control dampers
- Access Doors
- Chilled water fan coil units "Petra"
- Duct hangers
- Anchor bolt, nuts & washer
- threaded rod for duct
- VAV
- Air Inlets

7.0 PROCEDURES

7.1 Introduction

This method statement is applicable for the installation of HVAC Duct Work.

7.2 Documents

The following are the basic documents taken into consideration:

- 7.2.1** Approved HVAC Ducting & Pipe Work installation Method Statement.
- 7.2.2** Approved Shop Drawings

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7.2.3 Approved material submittals

7.2.4 All stages of work shall be inspected in accordance with the approved project inspection and test plan (ITP)

7.3 Installation

- Materials to be delivered to site and stored in a dry and friendly environment.
- Inspection of HVAC material & Equipment's prior to installation.
- Material receiving of duct work will be done prior to installation as per SATIP-K-001-03.
- Air system equipment & duct work shall be installed according to construction drawings & Specification & Manufacturer Installation Manual as per SAES-K-001 Para 5.2.1.
- Installation of hangers & Supports for HVAC piping & Equipment's as per approved support detail.
- Duct will be installed in Accordance with uniform mechanical Code(UMC) or SAES-K-100 as per SAES-K-001 Para 5.2.3.
- All air Supply & Return grills will be furnished in accordance with drawings & Specification , & mounted at location shown on drawings as per SAES-K-001 Para 5.2.2.
- Installation of duct penetrations and sleeves through walls and slabs & Ensure that all the Opening required through floor, walls, partitions, etc., for the duct system are provided in the exact location required.
- Applying Fire Proofing Material in Penetrations & Sleeves as per BS 476.
- Assembling and installation of un-insulated ducts.
- Fixing the Volume Control Dampers as per Approved Shop Drawings / Manufacturer Installation Detail.
- Applying of duct sealants.
- Testing of Duct is not Required Because of Low Pressure Duct.
- Applying of approved duct insulation.
- Installation of Plenum boxes and Flexible Ducts.
- Installation of access doors where required in the ducts for servicing.
- Labeling of the ducts as per approved identification labels.
- Installation of Supply/Return air grilles/diffusers as per approved shop drawings and submittals.
- On fixation of final fix items like grilles / diffusers etc., SAPMT/SAPID shall be invited for final inspection and certification.

8.0 LOSS PREVENTION

8.1 All activities shall be performed safely and in accordance to the Beck Interiors Loss Prevention approved CSSP and HIP.

8.2 All site operatives shall be equipped with and shall wear at all times the relevant Personal Protective Equipment (PPE) as per the safety guidelines. This shall include:

- Hard Hat

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- Safety Goggles
- Safety Shoes
- Reflective Vest
- Gloves

8.3 Risk Assessments

Prior to any works commencing on site a risk assessment shall be undertaken to identify any risk to workers or third parties. Any immediate risk such as tripping hazards, falls and working with electricity shall be briefed to the workers by the foreman.

8.4 Working at Height

When working at height from a Tower Scaffold or a Scissor Lift an appropriate safety harness shall be used at all times by all operatives working at height. No exception shall be granted unless the relevant Method Statement and working procedure has been reviewed by the BI site team and an exception has been granted and the relevant Method Statement signed by the BI site team.

8.5 COSHH (Control of Substances Hazardous to Health)

All materials and or substance that may pose a threat to health shall be stored and used in accordance with the manufacturer's recommendation.

8.6 Hot Works Notes:

- No Hot Works shall be undertaken without the relevant Hot Works Permit being in place. When using hot works (cutting with a grinder etc) a hot works permit shall be obtained as required by the BI site team.
- No cutting shall be done unless the atmosphere is non-flammable.
- Adequate ventilation shall be maintained by use of local air moving system like fans if the condition requires it.
- When undertaking hot works (cutting with a grinder etc), the following rules shall apply:
 1. At the work place there shall be a checked and inspected fire extinguisher.
 2. At the place of work there shall be a fire blanket.
 3. At the place of work there shall be cold clean water available in the case of a burn.
- No hot works shall take place until the foreman or supervisor has completed a risk assessment and confirmed with his workers that the area is safe to commence work.
- The foreman shall also be responsible for policing the hot works permit without exception.

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- When undertaking hot works next to or adjacent to completed or flammable works and or materials these shall be protected from damage by a fire retardant.
- All areas where hot works have been undertaken shall be inspected to check of fire for a period of at least 30 mins after the works have finished. Only after this shall the hot works permit be closed.

9.0 ATTACHMENTS

None