
METHOD STATEMENT AND RISK ASSESSMENT FOR INSTALLATION OF HVAC SYSTEM

CLIENT :
CONSULTANT :
MAIN CONTRACTOR :

PROJECT NAME :

DOCUMENT NO. :

DATE :

Rev	Date of Issue	Prepared by CONTRACTOR		Reviewed by Main Contractor	Approved	Description
		QA/QC Engineer	Project Manager	MEP Coordinator		
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1. OBJECTIVES

The purpose of this method statement is to define the sequence and methodology for the installation of GI duct and PI duct work at the valley Development – AVENA- 1(SD-01A) 322 Townhouses, Club House & Guard house Dubai-UAE. It gives details of how the work will be carried out and what health and safety issues and controls are involved.

The content of this method statement reflects the findings of the relevant risk assessment.

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2. ABBREVIATIONS

CONTRACTOR

MEP	:	MECHANICAL, ELECTRICAL & PLUMBING
WMS	:	WORK METHOD STATEMENT
GI	:	GALVANIZED IRON
PI	:	PRE-INSULATED
VCD	:	VOLUME CONTROL DAMPER
SHEQ	:	SAFETY HEALTH ENVIRONMENT QUALITY
SMACNA	:	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
QC	:	QUALITY CONTROL
QA	:	QUALITY ASSURANCE
ITP	:	INSPECTION AND TEST PLAN
MSDS	:	MATERIAL SAFETY DATA SHEET
ITR	:	INSPECTION TEST REQUEST
IFC	:	ISSUED FOR CONSTRUCTION

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3. REGULATORY REQUIREMENTS & REFERENCE STANDARDS AND CODES

3.1 Standards

3.1. ASTM A 653M, G90, Z275, SMACNA, DW144
3.2. ASHRAE 90.1 2007
3.3. Local Municipality code of construction safety practices
3.4. CLIENT Project Health, Safety, Environment & Security Guidelines
3.5. Local Fire and Life Safety Code of Practice

REFERENCES

- Project Specification – Mechanical Section 07
- Latest Approved Shop Drawings
- Project IFC
- Manufacturer Recommendations
- Approved Material Submittal
- Project Safety Plan
- Risk Assessment references

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4. RESPONSIBILITY AND SITE SUPERVISION

Project Manager

- Will have the overall responsibility of the project for execution, quality and safety. Also, he will maintain the planning progress and coordination of works with Main Contractor.
- The Project Manager will be visible in the Health and Safety process, constantly monitoring the project environment and performance.
- Taking action to correct discrepancies reported as a result of safety surveys and inspections.

Project Engineer

- Project Engineer is responsible to carry out the work as per the Approved Method statement, specification, approved drawings, as per local authority regulation and Manufactures recommendation.
- Project Engineer shall ensure that the resources are available to carry out the works as scheduled.
- Project Engineer shall be available at site full time for the execution of works as per schedule and specification.
- The PE will also be visible in the Health and Safety process, constantly monitoring the project environment and performance, providing the force and resources necessary for project compliance with agreed safety procedures and standards.
- Project Engineer will report to manager.

Site Engineers

- Will be responsible for the day-to-day activities on site, for materials, drawings, testing and commissioning and allocation of Departmental resources to work on Site. The Project Engineer will report to the Project Manager.
- He will be responsible for the Health and Safety aspects on site as per the Main Contractor and CONTRACTOR requirements as documented within CONTRACTOR SHEQ plan.

QA/QC Engineer

- Will be overseeing the quality requirements and quality control measures for the Project in coordination with the Senior Project Engineers as outlined in the CONTRACTOR Project Quality Plan.
- Will inspect the activities and ensure the work done in accordance with the project documents prior to submission of related inspection.
- He will be responsible for the Health and Safety aspects on site as per the Main Contractor and CONTRACTOR Safety requirements as documented within CONTRACTOR SHEQ plan.

MEP Coordinator

- Will advise on any impact on services caused by Architectural changes.
- Will coordinate main contractor's work plan with MEP team.
- Will assist internally QS and Planning department for update MEP system progress.
- Ensuring that services provisions clearance is provided in time for structure.
- Will oversee MEP service installation under civil contractor scope of works.
- Ensure that MEP site instruction/NCR are closed out.
- Ensure that Company HSE policies are implemented at site in coordination with HSE department.

Ducting Supervisor

- Will be directly responsible for the day-to-day job on site, for coordinating work with the technicians or any other staff assigned to their area.
- Instructing personnel in SHEQ requirements and practices applicable to the work that they will be performing through instruction and on-site guidance, this will be on a daily basis before any new task is started.
- Ensuring that all required safety equipment is requested and made available to personnel carrying out the work on site.
- Reviewing SHEQ considerations for all job tasks and recognizing potential risks before starting.
- Discussing and solving any areas of concern with the relevant SHEQ personnel.
- Ensuring that Risk/impact assessments are carried out by the relevant engineers/ SHEQ personnel prior to the execution of specific tasks.

HSE Manager & Officers

- Develop and assist site management in implementing this method of statement and risk assessment.

- Have the ultimate authority to issue stop work order on site if any imminent danger is not being rectified immediately to his satisfaction.
- Advise construction team on safe systems of work and safest method of working.
- Ensure that safe systems of work are defined and documented, and that hazard analysis and risk control methods have been incorporated during the preparation.
- Focus on the elimination of unsafe acts, and rectify unsafe conditions quickly.

Duct Man

- Responsible for the fabrication and installation of ducting for the HVAC system as per project specifications, drawings and manufacturer recommendations.
- Ensure daily installation progress is achieved.
- Discussing and solving any issues and conflicts with mechanical engineer and ducting supervisor.

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5. PREPARATION AND PRE-INSTALLATION OF WORK

Pre-ordering

- Workshop Drawings and Material Submittal must be prepared and approved.

Ordering

- Follow Supplier standard procedures for ordering of Ducts and relevant materials.

Factory Manufacture

- As per Supplier/ Manufacturer.

Logistics to Site

- Materials will be transported to the site by the Supplier or CONTRACTOR in accordance with the manufacturer's recommendations so as to avoid damage or deterioration.

Pre-Installation

- A pre-start meeting prior to the commencement of the works will take place with the Site Engineer, H&S Officer, QC Engineer, and Supervisor/Foreman in charge to address the following:
- Ensure specific training provided to workers for the installation as per manufacturer requirement.
- Ensure that the area is clean and has been surveyed as per approved drawings and safe to carry out the work.
- Safety permit to be obtained.
- Ensure that all materials to be use are as per approved Material Submittal and Project Specification. All materials delivered to site shall be inspected and approved by the consultant. Submit Material Inspection Requisition (MIR).

- Ensure MIR to be approved prior to installation.
- Ensure that latest approved shop drawing for this installation is present, and all personnel are working of the same drawing.
- Ensure that adequate numbers of tradesmen with proper tools are present.
- Ensure that all related civil works are properly coordinated with main contractor and with other services to avoid conflict for future installation.
- Ensure approved material is available at the site.
- All related document such as shop drawing, approved method statement shall be available at site during installation.
- Pre inspection shall be done to check any possible clashes with other services.

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6. MATERIAL MANAGEMENT

General

- Materials shall be approved prior to procurement. A material approval schedule shall be maintained by the Project QA/QC Engineers.
- Incoming materials shall be inspected for conformance by the Project QA/QC Engineer.
- Obtain MIR approval prior to site installation.
- The Project MEP Consultant or Main Contractor's QA/QC Engineer shall be invited to inspect materials for conformance prior to installation.
- Relevant certificates of conformance shall be presented at the time of inspection with the MEP Consultant as applicable.
- All material inspections shall be recorded on the MIR log (Material Inspection Request). All major items shall be inspected for each delivery.
- Material Requirements – As per Shop drawings.

Handling

- Necessary precautions shall be taken for unloading, shift and storing.
- Duct should never be dragged along hard surfaces. In case of mechanical lifting, avoid using metal chains and hooks in direct contact with the ducts. Protected slings and padded supports to be provided.
- Incoming material shall be checked by the QA/QC weather it meets the latest approved material submittal.

Storage

- The Ducts should be kept on a flat surface or on level ground free from stones and sharp objects with supports at the bottom also at both sides.
- Ducts shall not be in direct contact with ground.

- It should be covered by polyethylene plastic protection while storing.
- All the ducts (PI & GI) will be stored based on manufacture recommendations.
- Only approved material shall be stored at site.

Inspection of Materials in Stores

- Upon receipt of materials on site these will be inspected by the Store man and Site Engineer or representative, to ensure correctness of materials and quantities.
- A Material Inspection Request (MIR) shall be issued and all materials will be inspected and verified by the Engineer that they are correct.
- Obtain MIR approval prior to site installation.

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7. INSTALLATION PROCEDURE

7.1 G.I. DUCT INSTALLATION

- Prior to start of work, site engineer and supervisor for execution of this activity shall ensure that the arrangement have been made as per pre-installation check and civil clearance obtained.
- Installation will be carried out as per approved shop drawing or coordination drawing, approved method statement and approved MIR.
- Obtain approval for individual service & coordination layout drawings prior to installation.
- Duct support shall be site fabricated based on approved installation details and shop drawings for ductwork System.
- Clean the surface of duct properly and ensure it is free from dust, dirt, oil and other unwanted object prior for assembling and fixing work.
- Check all builders' works openings are as per the size of the ducts in the approved drawings and there is enough space between ducts and openings so that ducts can be installed easily without damaging.
- Installation will be started after the clearance obtained from other activities in sequence of work.
- With reference to the approved shop drawings, all routes shall be carefully marked by Foreman using a marker and chalk powder according to the reference point (Grid lines) bench mark provided by main contractor and routes shall be reconfirmed with other MEP services for any clashes. Marking to be witnessed by site engineer & verified prior to installation.
- Determine the duct routing and mark the location of supports on concrete slab with an equal distance between two drilled holes on the horizontal gaps for a perfect vertical result of threaded rod fixed from the soffit slab.
- Duct work that passes through floors, ceiling, and walls should be padded and sealed with a sealant.
- Also, duct works crossing fire rated walls/shafts to be provided with GI sleeves & appropriate fire sealant.
- All supporting arrangements shall be provided with proper fixing arrangements and as per the specification.

- The installation of the duct above false ceiling & support spacing details to be as per project details.
- Rubber gasket to be provided underneath of duct.
- Support details are shown in below diagram.
- Follow the manufacturer's recommendation on installation of Anchor fastener. After Anchor bolt/fastener are installed, insert the G.I. threaded rod to Anchor Fastener vertically down to maximize the tensile strength of rod and fixed it properly.
- The ductwork will be lifted manually into the supports and aligned with the preceding length of installed ductwork, ensuring that all levels and dimensions are correct as per the approved construction drawings. Offsets due to site coordination requirements may be permitted and shall be indicated on as-built drawings.
- Clean both faces of the duct before joined to each other.
- The sealant will be applied to the joints (Refer section 7.5 for joint connection details) and using the duct fastenings the joint will be made airtight (S&C cleats joining methods as per SMACNA/DW144 & material submittal details). Any excess sealant will be removed and the joint left in a clean and tidy fashion.
- Open ductwork ends to be temporarily sealed before leaving the workforce each day.
- Check all joints physically for the Sealant. Also check the levelling and physical damages.
- Volume Control dampers to be provided by using self-tapping screws & cleats (Refer section 7.3 for connection details) to control the air flow as and were shown in the approved shop drawing.
- Flexible duct connection by using rings on bell mouth (Refer section 7.4 for connection details) and droppers to be done for installation of air outlets, length extending not more than 1.2 m.
- Proper identification needs to be provided in the ducts. Description, colour and size of the labels should be as per the standards and approved material submittal.
- Identification label MIR to approved before installation.
- Ensure that all services are properly coordinated and level of bottom of duct is achieved as per the project specification and approved shop drawings.
- As each duct section gets completed, check and make necessary adjustments to ensure that the ducts are in the correct level and alignment.
- For roof ductwork, will use HDG supports and followed as per project details.
- Use polyurethane to seal the open end of the duct temporarily, get rid of all construction debris, and clean up the site before leaving.
- Carry out a thorough inspection after the installation is complete.
- GI duct Schedule of material details is attached in the attachment section for Engineer's review.

7.2 P.I. DUCT INSTALLATION

- Prior to start of work, site engineer and supervisor for execution of this activity shall ensure that the arrangement have been made as per pre-installation check.
- Installation will be carried out as per approved shop or coordination drawing, approved method statement and approved MIR.
- Obtain approval for individual service & coordination layout drawings prior to installation.

- Duct support shall be site fabricated based on approved installation details and shop drawings for ductwork System.
- Clean the surface properly and ensure it is free from dust, dirt, oil and other unwanted object prior for assembling and fixing work.
- Installation will be started after the clearance is received from other activities.
- Determine the duct routing and mark the location of supports on concrete slab with an equal distance between two drilled holes on the horizontal gaps for a perfect vertical result of threaded rod fixed from the soffit slab.
- Duct work that passes through ceiling, and walls should be padded and sealed with a sealant. Also, it should get a fire rating it will be passing through fire rated walls.
- Follow the manufacturer's recommendation on installation of Anchor fastener. After Anchor bolt/fastener are installed, insert the G.I. threaded rod to Anchor Fastener vertically down to maximize the tensile strength of rod and fixed it properly.
- The ductwork will be lifted manually into the supports (10 mm threaded rod and slotted channels) and aligned with the preceding length of installed ductwork, ensuring that all levels and dimensions are correct as per the approved construction drawings. Offsets due to site coordination requirements may be permitted and shall be indicated on as-built drawings.
- The sealant recommended by the manufacturer will be applied to the joints and using the duct fastenings the joint will be made airtight. Any excess sealant will be removed and the joint left in a clean and tidy fashion.
- Pre-insulated ducts are jointed with PVC H bayonet cleats for flanged joints as per the construction schedule.
- Fixing of aluminium invisible profile, H bayonet & corner cover in PVC to join the duct as per approved details and in compliance with the specification requirements, manufacturer recommendation & site requirements.
- Open ductwork ends to be temporarily sealed before leaving the workforce each day.
- Check all joints physically for the Sealant and fastenings.
- Volume Control dampers (Refer section 7.3 for VCD connection) to be provided to control the air flow as per approved shop drawing / as per first take off.
- Liner will be provided 3 m from FCU (Refer section 7.6 for liner installation details) as per the project specification and drawings.
- Liner will be factory fabricated.
- Plenum box to be installed prior to diffuser fixing. Details to be followed as per the approved RCP layout drawing.
- Proper identification needs to be provided in the ducts. Description, colour and size of the labels should be as per the standards and approved material submittal and shop drawing.
- Ensure that all services are properly coordinated and level of bottom of duct is achieved as per the project specification and approved shop drawings.
- As each duct section gets completed, check and make necessary adjustments to ensure that the ducts are in the correct level and alignment.
- Use polyurethane to seal the open end of the duct temporarily, get rid of all construction debris, and clean up the site before leaving.
- Return plenum for FCU to be installed as per shop drawing.

- Acoustic liner to be installed as per the duct connection details.
- Carry out a thorough inspection after the installation is complete.
- PI duct Schedule of materials and insulation details are attached as per approved manufacturer in the attachment section.

7.3 INSTALLATION OF VCD (FLANGE TYPE)

- Mark the hangers and supports of the duct accessories as per the specification.
- Install duct accessories such as, VCD as per the manufacturer's instructions and in locations indicated on the approved shop drawings.
- Dampers shall be provided with independent housing and control mechanism.
- Prior to installing the damper, inspect the ductwork and the surrounding area for any obstructions that might interfere with the linkage, blade rotation.
- Care must be taken not to drop, drag, crush, or apply excessive bending, twisting, racking and skewing loads upon the damper frame, blades, linkage or accessories.
- Lift panels into duct (on opening) by its frame, not by any blade or hardware. Final position must be square, straight, plumb, and without twist.
- Damper should be shimmed in the opening to prevent distortion of the frame by the fasteners holding it in place.
- Dampers with seals will provide to prevent leakage between the frame and duct.
- All necessary flanges to be used as per PI duct manufacturer recommendation.
- Accessibility will be verified.
- Attach the VCD to the duct using sheet metal screws or rivets. Ensure that the damper is level and cantered within the opening.
- Provide the joint insulation and gasket as per the approved installation details or as per consultant satisfaction.
- Apply HVAC sealant or duct tape around the edges of the damper where it meets the duct. This ensures an airtight seal and prevents air leakage.
- VCD connection details shall be followed.
- All supports shall be provided as per approved support schedule.
- After installation, proper inspection will be done.

7.4 INSTALLATION OF FLEXIBLE DUCT

- Flexible duct will be used for the connection of ducts with fans, plenum box & diffusers.

- Make cutting in the duct as per site requirement to fix the flexible duct through GI Ring connection then to be connected with the Fan/Diffuser.
- Cutting the End cap for GI Ring connection.

Termination details:

  - Connection of flexible duct with GI ring by PVC cable Tie / Jubilee clamp.
  - Make enough tight to the connection and give extra protection with Alu tapes around the jubilee clamps/ cable tie.

- Good quality Alu-glass tapes (preferably manufacturer recommended) to be used.
- The installation of the insulated flexible ducts will be as per the approved shop drawings for the recommended places only for the distribution of supply or exhaust air diffusers and grills to match with the exact location at the air outlet, maximum length of a flexible duct connection shall be 1.2 meter.
- Ensure that flexible ducts are not damaged and installed properly without any sharp bends.
- Hangers shall be adequately attached to the building structure.
- Avoid contacting the flexible duct with sharp edges of the hanger material.
- Terminal devices connected by flexible duct shall be supported independently of the flexible duct.
- Hanger material in contact with the flexible duct shall be wide enough so that it does not reduce the internal diameter of the duct when the supported section rests on the hanger.
- Ensure that proper supports are provided for flexible ducts to avoid any sagging as per the specification.

7.5 JOINT CONNECTION OF GI DUCT

- Make sure to thoroughly clean duct to rid surface of dirt, grease and oil. Lay out all insulation materials in a clean area.
- Mark the area on the existing main duct where you plan to attach the new duct.
- Attach the necessary fittings (such as elbows, reducers, and collars) to the new opening on the duct. Use sheet metal screws to secure the fittings in place.
- Connect the new duct to the installed fittings, ensure the connections are secure and airtight.

- Joints will be installed with S&C cleats and sealant will be applied to ensure air tightness.

- By using hangers or supports to secure the new duct in place. The ducts should be properly supported to prevent sagging or strain on the connections.

7.6 INSTALLATION OF ACOUSTIC LINER FOR PI DUCT (To be done from the factory)

- Make sure to thoroughly clean duct to rid surface of dirt, grease and oil. Lay out all insulation materials in a clean area.
- Ensure that the correct acoustic thickness and type are used.
- Liner installation will be done by approved fabricator.
- Measure the length and width of the duct sections where to install the acoustic lining. Using a straight edge and a utility knife or scissors, cut the acoustic liner material to fit the dimensions of the duct sections. Leave a slight excess on all sides to ensure a snug fit.

- Acoustic liner to be installed only by approved fabricator or manufacturer representative.
- Cut acoustic sheet to correct size of PI duct, making sure it is flush with the last edge.
- Apply adhesive to the surface of the PI duct.
- Apply the pin adhesive to the back of the perforated base insulation hanger, stick the base of the pin on the inside of the air duct where needed, following the manufacturer's instructions.
- Carefully press the adhesive-coated side of the liner material against the interior surface of the duct. Start from one end and proceed along the length of the duct.
- Paste the acoustic liner.

- Particularly apply pressure on the edges to secure it firmly in place, Z angle will be used for integration.
- Once the duct liner is in place, seal the edges with a sealant or tape to prevent any air or sound from escaping.
- Allow the adhesive to cure for the recommended amount of time before using the duct or applying any additional layers of material.
- After Complete the work, systems shall be cleaned both inside and outside, remove foreign matter.
- After all the acoustic lining is installed, will inspect each section carefully to ensure proper adhesion or fastening, as well as complete coverage. Will make any necessary adjustments or fixes as needed.

7.7 INSTALLATION OF FRESH AIR UPVC DUCT

- Prior to start of work, site engineer and supervisor for execution of this activity shall ensure that the arrangement have been made as per pre-installation check.
- All Fresh air UPVC Duct installation works will be carried out in accordance with the specification/ approved MSS.
- Before any material is installed on the site, site engineer shall ensure that the materials are approved as per specification and material submittal.
- Mark out fixing line in accordance with other services and fix supports.
- Supporting of pipe shall be arranged as near as possible to joint and change in direction as per specification.
- Piping support shall be provided at intervals as per specification.
- The pipes shall be cut as required lengths and ends shall be chamfered to remove burrs.
- Clean the pipe and socket before applying the lubricant / glue as per manufacturer recommendation.
- Fix the pipes on the support with relevant fittings and as per the approved drawing/ specification.
- All vertical pipe shall be supported as per specification.
- FA shall be connected with FCU's return plenum using a flexible duct as per approved specification & shop drawing.

7.8 INSTALLATION OF NON-RETURN DAMPER (NRD)

- Before installation check any physical damages on the dampers.
- Confirm the position of the dampers to fix on the duct as per approved shop drawing. Mark and cut it to the specified size. (You will only need to cut when there is no opening in the duct already).
- Determine the position of the damper to be fixed on the duct from the construction drawing and check site conditions.
- NRD installation details shall be available on installation site which shall be complied.
- Double check the location for the requirement of installation tolerances and clearances as specified in the approved shop drawing.
- Fix the NRD in the duct using the correct size of bolts and nuts.
- Install duct accessories such as NRD as per the manufacturer's instructions and in locations indicated on the approved shop drawings.
- Apply HVAC sealant around the edges of the damper where it meets the duct. This ensures an airtight seal and prevents air leakage.

7.9 INSTALLATION OF AIR OUTLETS

- Approved make, type and model of grilles, diffusers, louvers and exhaust disc valves shall be installed as per approved material submittal and project specification.
- Obtain MIR approval prior to installation.
- Air outlets models and type shall be installed as per approved shop drawing, manufacturer's recommendations and in line with ID / Arch drawings.
- All air outlet shall be reflected with the false ceiling and the architectural approval is required before find selection of air outlet.
- All air outlets shall be vertically and horizontally checked during fixing.
- Sealant shall be used to seal the connections between the ducts and air outlets.

GRILLES AND DIFFUSERS – INSTALLED ON FALSE CEILING

- Ensure only approved RCP drawings issued for construction are used for installation.
- Ensure that the proper clearance is available from civil side before commencement works.
- Visually inspect the grilles, diffusers & disc valves. The installation has to be carried out in accordance with manufacturer installation recommendation and specification.

- Prior to start of installation, refer to the approved shop drawing and reflected ceiling plan drawing related to the area of installation and ensure that required material is available at site as per approved material submittals.
- Ensure that the materials are stored properly and there is no damage or deformity of any kind during transportation. The material shall be moved to the place of installation.
- After inspecting the work area, ensure that it is totally ready for installation.
- Coordinate with false ceiling contractor for cut-out on the false ceiling to match the fixing arrangement as per approved RCP, for the Grilles / diffuser / disc valves as per the recommended cut-out size provided by manufacturer.
- Adjust the level and position of the diffuser / grille / disc valves to match the opening in the false ceiling.
- Check and ensure the gasket provided with diffuser / grille / disc valves is in the place. (If applicable)
- Check and ensure the damper of diffuser / grille is in operating condition and in fully open position.
- Fix the diffuser / grille to the plenum box / collars with screws / fasteners as shown in the detailed drawings.
- Check and ensure the sides of grille / diffuser / disc valve are paralleled and in proper orientation with respect to false ceiling grids or board as applicable.
- Check and ensure the edges of the grilles / diffusers / disc valves are in complete contact with false ceiling tiles and there is no abnormal gap.

GRILLES AND DIFFUSERS – INSTALLED ON WALL

- The wall opening shall be provided with level, smooth and even finish by main contractor as per dimensions of air inlets and air outlets.
- Wooden frames to provide for all grilles on wall (by main contractor).
- After the completion of first coat painting, the grilles to be fixed in frames.
- Terminate the duct at the inner face of the wall and seal with sealant.
- Install the grille on the opening by means of push and lock type fixing clips provided by the manufacturer. Adjust the level of the grille.
- On site briefing shall be given to consultant and his advice will be followed for air outlet fixation methodology. Necessary diagrams shall be approved before installation starts.

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8. QUALITY CONTROL INSPECTION

- All request for inspection shall be raised by QA/QC at minimum 24 hours prior to inspection.
- In process works shall be monitored for quality of workmanship and installation against approved construction drawings by the relevant QA/QC Engineer, Supervisor and Project Manager.
- All works shall be inspected for quality of workmanship and conformance to specification prior to offering for Engineers inspection.
- Ensure that all the pre-commissioning checks are carried out successfully.
- Ensure no damaged on the ducts.

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9. HEALTH, SAFETY & ENVIRONMENT RISK CONTROLS

General

- Site general safety procedures will be followed. In case of Emergency arrangements and report to assembly points as indicated during the Site Induction Course.

PPE

- Standard PPE shall be used by all workmen as per the site requirements.

Fire Precaution

- General fire prevention measures will be taken as per the Main contractor's site Fire & Emergency plan.

Communication

- Senior Foreman will communicate from work areas to Site Office via mobile phones.

Safety Lighting

- Safety Lights will be used in case of power failure ensuring good illumination of the area for evacuation personnel.

Task Lighting

- Adequate lighting will be provided to ensure the good illumination of the working area.
- Task Lighting will be connected to the nearest site distribution board which will be RCD protected.

House Keeping

All work places where personnel are working will be cleared of all scrap materials derived from their work, ensuring clean and healthy work environment as well as to maintain free access and egress in the event of emergency.

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10. TRAINING

- Tradesman performing the described work will be experienced AC duct man. If deemed necessary specific team/ individuals will undergo further training and awareness programs for this activity by the Production/ Quality Assurance Departments.
- Toolbox talks will provide general training and awareness for each activity and also in Health & Safety matters and precautions (including the use of hazardous materials i.e. solvents).

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11. PLANT AND EQUIPMENT REQUIREMENTS

- Hand tools
- Rivet gun
- Insulation cutting knife
- Spirit level
- Step ladder
- Aluminium scaffolds
- Sheet metal cutting tools and bender
- Adjustable spanners
- Riveter
- Drill machines
- Hammers
- Grinding machine
- Adhesive applicator
- Double lanyard full body safety harness belt
- Sealant

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12. ATTACHMENTS

12.1 Schedule of proposed materials
12.2 ITP
12.3 Checklist
12.4 Risk Assessment