Method Statement for Installation of Ductworks with Accessories

Ductwork is an MEP work, if you are a quality engineer working in MEP contracting, this method statement is for you.

Ductwork is a huge part of the work in a construction of a high-rise building project or even in a low-medium rise. So, here is a "Method Statement for Installation of Ductworks with Accessories."

1. Scope of Work

The scope of this method statement is to describe the measures and ways of ductworks with required accessories as per project specification and project quality plan.

2. Field of Application

This method statement would be used to make sure the proper way of installing duct in the areas where it is designed to be in-placed such as slab soffits, through slab, roof and many more.

3. Purpose

The purpose of this method is to define the specific tasks to be performed by Company relating the chasing ceiling works and to make sure quality of the output including the safety of the works.

4. Reference

• Design Layout Drawing or Builders Work Drawing

• Material Approval Request

• Specification Section for Ductwork

5. Material

• GI Duct and Fittings

• Fiber Glass Duct Insulation

• Hanger and Supports

• Duct Adhesives

• Volume control damper

• Fire Dampers

• Fire Sealant

6. Manpower

• Project Engineer

• Site Engineer

• Supervisor

• Foreman

• Ductman

7. Equipment and Tools

• Task Lifting

• Scaffolding

• Mobile Scaffolds

• Ladder (Only for offloading purposes)

• Standard Tool Kit for Duct Fabricator

• Lifting Slings

• Duct lifter

• Man lifter

• Portable grinding machine

• Sheet metal cutting tools and bender

• Hand drilling machine

• Safety helmet

• PPE such as eye protection, dust and chemical mask, Hearing protection, Overalls, Body Harness

8. Methodology

1. The ducts are made to conform to relevant standards and specifications. It will be ensured that site measurements and approved drawing meet the required standards.

2. MIR inspection will be carried out on the duct once it is delivered to site. This is done to increase conformance to specifications before the ducts are covered.

3. Ensure that there is no leakage of air from between the pieces by using recommended gasket on the TDF flanges. Use quality bolts and nuts (approved brands) to join the pieces.

4. Use appropriately sized drill to mark the location of hangers in the slab.

5. Choose the correct sizes of anchor bolts; insert them into the drilled location and use a hammer to fix it firmly.

6. Where structural steelwork will require support, beam clamps, glider clips, or other devices that do not require welding or drilling of the steelwork shall be used to attach them to the steelwork.

7. Choose the threaded rod that has the appropriate length and diameter; fix it by carefully twisting the anchor bolt. Make sure you exercise caution to avoid damaging the threads.

8. Lift the ducts one at a time through hoisting up the support level, make sure it is positioned and aligned to the specified level in the construction drawing.

9. Use nuts and bolts to join the duct. Ensure that you have all the accessories needed to complete the installation, such as supports and hangers.

10. Follow the approved drawing and specification while placing the hanger support. Provide approved gasket before you place the duct over it. The sizes of support will vary depending on the approved project drawing and specification.

11. Using the approved installation details as a guide, use nuts and washer to fix the support.

12. Special channel support should be used for vertical ducts. Make sure this support is bolted on the inner surface before it is fixed on the wall

13. Fabricated fittings should be used for all duck connections. Avoid diagonal runs. Unless otherwise stated in the project drawing, duct should be located horizontally and vertically.

14. Ductwork penetrating external walls and floors shall be sealed to the wall.

15. Ductwork that passes through floors, ceilings and walls should be padded and sealed with a sealant. Also, it should get a fire rating if it will be passing through fire-rated floors or walls. Fire damper should be installed at the point where the ductwork penetrates the fire rated walls.

16. Install fire dampers in compliance with project specification and SMACNA standards.

17. If required, fire dampers/motorized smoke will be installed according to the approved shop drawing and any other damper should be fusible link type.

18. There should be provision of an access door for inspection, calibration, adjustment and maintenance of dampers in line with the project specification.

19. As each duct section gets completed, check and make necessary adjustments to ensure that the ducts are in the correct level and alignment.

20. Use polyurethane to seal the open end of the duct temporarily, get rid of all construction debris and clean up the site before leaving.

21. Repeat for other part of the ducts until the whole ducts are connected.

22. Carry out a thorough inspection after the installation is complete.

9. Installation of Volume Control Dampers/Fire Dampers

1. Confirm the position of the dampers you want to fix on the duct from the project drawing. Mark and cut it to the specified size. (You will only need to cut when there is no opening in the duct already).

2. Double check the location for the requirement of installation tolerances and clearances as specified in the drawing.

3. Shift the volume control/fire damper (VCD/FD) to the right position manually and make sure that the damper channel frame and the duct companion flange match.

4. Ensure that the joint is airtight by applying gasket and make sure you fasten the clamp on the duct flange.

5. To install, insert type of volume control damper, insert the VCD/FD inside the duct into position through the opening provided by cutting slot which has to be closed and sealed later.

6. Fix the VCD/FD in the duct using the correct size of bolts and nuts.

10. How to install Manual Duct Hoisting at a high level

1. Mark the point where the support is located. Drill the anchor bolt and place the rod and angle bar to the support.

2. Use a pulley and a hoisting rope for the duct support and use the rope to tighten the duct.

3. Put measures in place that will prevent slipping and tripping when lifting and lowering the duct. Make sure you make a barricade and also provide a warning sign.

4. The ductworks should be lifted gradually and one part at a time and it can be done mechanically or manually as the weight gets evenly distributed throughout the length of the ductwork, ensuring that all dimensions and levels conform are in line with the approved construction drawing. If the need arises to use mechanical lifting accessories, they must be rated and certified before being used. All certification for lifting accessories and equipment must be done before the equipment is used. The equipment should be inspected and certified by a safety officer.

5. Use recommended scaffolding that has toe board protection and it should have the approval of a scaffolding inspector.

6. Slowly hoist the duct until the desired height is reached. Slip the angle bar below the duct and then release the rope from the duct. Same process will follow.

11. Proposed Control Measures to Reduce the Risks (use additional sheet if necessary)

1. A three ton truck will be used to transport GI conduits and accessories to site. Vehicles and machinery older than 10 years will not be used and they will all be inspected by main contractor logistic department personnel. Be mindful of the site traffic signs and the speed limit of 20 km/h.

2. The entire loading and offloading of GI conduits material will be inspected by main contractor lifting team. The main contractor will provide a Third party certified mobile crane operator, signaler, accessories and other appointed persons; he will also ensure that the lifting permit is in place. All activity that involves loading and offloading will be controlled by the Main contractor lifting supervisor.

3. A standard storage area with proper covering and shading will be provided for all GI conduits materials. The material should be stored at least 1.5m from the ground. Appropriate stopper/wedges will be made available.

4. The company makes sure that every employee is safety inducted before entering the site, and they will learn about the site's safety regulations and rules, site's emergency procedure, and so on.

5. JSA & PTB will be carried out and briefed daily before the commencement of work on site by a concerned supervisor or engineer.

6. All personnel involved in the installation of GI conduits and accessories will undergo training by HSE officers on manual handling and safety precautions and procedures that have to do with working at height.

7. All power tools and hand tools will be subjected to inspection, quarterly PAT testing, before being used to ensure they are fit for use. All power tools must be 110 V (depends on your country) and must come with double insulated cables. Color coding will be maintained as per main contractor procedure.