

Method Statement for HVAC Ductwork Insulation and Acoustic Lining

1. PURPOSE

This method statement covers on site installation of insulation for pre-fabricated duct-work systems manufactured from hot dipped galvanized steel sheet in line with the SMACNA requirements.

2. SCOPE OF WORK

This method statement is to define the best method to ensure that ductwork insulation and acoustic lining for prefabricated ducting, bracketing, and in line equipment installation and final connections and workmanship are correct and acceptable, and conforming to the contract documents and general project HVAC specifications.

All the material to be submitted for review by the client /consultant. For help on the review process see latest revision of the material procurement schedule.

3. RESPONSIBLE PERSONNEL

Below personnel are responsible for managing and conducting the ductwork insulation and other related activities.

- Construction Manager
- Mechanical Engineer/Superintendent
- Warehouse Controller
- Quality Controller

4. DUCTWORK INSTALLATION PRE INSTALLATION REQUIREMENTS

- Construction Department will check all materials, drawings and other documentation relevant to a particular section of works prior to the commencement of work.
- Before commencing any construction works, pre-inspections will be carried out on all materials prior to them leaving the storage area.
- Prior to the commencement of any construction works, areas and access will be inspected by the construction team to ensure that they are in a suitable condition for construction works to commence.

5. METHOD OF INSTALLATION – INTERNAL & ACOUSTIC LINING

- Mechanical Superintendent will instruct tradesmen regarding the execution of the works and will distribute all necessary construction drawings of the latest revision. The supervisor will also check that tools and equipment available are in compliance with the contract requirements.
- Supervisor will requisition approved materials for the specific installation to be carried out and adhere to the following guide lines for insulation and acoustic lining.
- On receiving the approved materials, checks will be made by the Construction Supervisor to ensure that slabs are free from damage and ingress of moisture.
- Care will be taken in the preparation of the under surface before any adhesive is applied, all the duct-work is to be clean and free from moisture.
- For acoustic lining, the lining will be secured using 100% coverage of adhesive, and fixed using mechanical fasteners. Fasteners will be at 400mm centers and not more than 50mm from the edges of the lining.
- Ductwork acoustic linings will be CFC free foam and will be applied with insulation adhesive and metallic fasteners. Site Supervisor will ensure that seams and joints are thoroughly sealed to eliminate possible fibre entertainment in the duct due to air velocities, and provide continuous sheet metal edge protectors at entering and leaving edges of lined duct section.
- Sectional ductwork will be joined together after internal insulation or acoustic lining – Longitudinal seams shall be joined by means of the Pittsburgh lock system and traverse by mating flanges spot welded to ductwork.
- Contractors Drawings will clearly indicate which sections of prefabricated ductwork are to be installed within one meter of electric heaters, and fire dampers. If these sections are internally lined they will be sheathed with sheath metal to form a “double skin” in accordance with the contract document.
- If applicable, acoustic lining associated with exhaust ductwork from kitchens services, food preparation areas and similar areas shall be sealed with an impervious material such as polyethylene terephthalate or similar in accordance with the manufacturer’s recommendations.

6. METHOD OF DUCTWORK INSULATION – EXTERNALLY INSULATED DUCT

- Ductwork that is to be externally lagged will be identified on the approved contractor's drawings and issued to the on-site supervisor.
- Surface areas of ductwork will be inspected to ensure that they are not wet or damp.
- An independent section of insulation will be applied to each adjacent section of the ducting, ensuring corners have adequate backing foil with a minimum 75mm overlap to achieve an acceptable vapour barrier.
- Joints will then be sealed with 150mm wide adhesive tape horizontally and vertical.
- Care shall be taken during the installation of the insulation that adhesive is applied with 150mm brush widths at 300mm intervals. Insulation will be fixed with pins clips to prevent sagging, and tie cords or bands may be used at 900mm centers until adhesive sets.
- Special care will be taken that perforations cause by pins and or clips or similar are correctly vapour sealed.
- Supervisor to ensure that where insulation passes through a fire barrier sleeve all gaps are caulked with approved fire resistant material.
- Flexible connections will be wrapped with insulation overlapped and secured to ductwork shoes and plenums by the use of metal bands.
- High density fibre glass board complete with vapour barrier or equivalent material shall be used on bracket/hangers for the external insulated ductwork.
- Supervisor will ensure that all insulation works looks neat and tidy. Make sure that there is adequate spacing to allow access for dampers and in line equipment operation and ease of maintenance.
- The Supervisor in charge and the QC officer shall continuously monitor the activities. He will ensure that all components indicated on the approved drawings have been installed. He is also responsible to check and ensure that the installation is in accordance with the contract requirements and manufacturers recommendation.

- All completed installation works equipment will be protected to avoid damage until final completion/handover in accordance with the approved procedure.

7. SAFETY AND ENVIRONMENTAL REQUIREMENTS

All insulation work shall be conducted in compliance with the risk assessment and as per project HSE considerations.

8. RECORDS

1. Inspection and Test Plan ITP
2. Insulation Checklist
3. Lining Checklist

9. REFERENCE DOCUMENTS

1. Particular Technical Specifications
2. Shop Drawings