

Method Statement for Installation of Ventilation Fan

This document applies to the inward site inspection, installation and inspection methods to be adopted for the ventilation fan installation.

After receiving on the project site, ventilation fans shall be stored in a clean / dry place and adequate covering by tarpaulin sheets to be provided to protect the equipment from deposition of construction dust till they are finally shifted to their location.

Make sure the proper storage of exhaust fans as per manufacturer recommendation.

Following tools and equipment shall be arranged before starting the work of fans installation;

1. PPE for all staff and labour
2. Measuring tape and setting out markers
3. Electric Drill hammer
4. Hack saw Cutter
5. Duct-man's tool box
6. Step ladder / Scaffolding
7. Lifting Equipment / Duct lifter / Chain Block

Verify before installation of ventilation fans that all the safety requirements have been complied with and are in place.

Site engineer or supervisor will verify that all relevant approved latest revisions of shop drawings, technical submittals, inspection and test plans are in the work place for installation reference. This also includes the verification of manufacturer installation procedures.

The foreman will orient and familiarize all the mechanical technicians and labours involved in the installations regarding the relevant approved shop drawings, technical submittals, installation procedures and details, acceptance criteria and safety requirements.

The supervisor and foreman will examine area/surfaces to receive the ventilation fans for compliance with installation tolerances and other required conditions, as described in the installation requirement.

Installation will not proceed until unsatisfactory conditions have been achieved and any discrepancies are corrected.

Installation Method of Floor Mounted Ventilation Fan

- Check the ventilation fan foundation and ensure it is as per approved drawings

- Check the area around the foundation and ensure proper access to the ventilation fan from all sides as applicable.
- Check the foundation surface and it should be a smooth and even finish avoiding any dust accumulation.
- The foundation surface shall be cleaned before installation of ventilation fans.
- Mark the ventilation fan position on the foundation as per approved shop drawing.
- Fix the anti-vibration mounts/pads and slightly tighten to foundation on the bolt and check for alignment.
- Shift the ventilation fan to the place of installation in a safe manner using hand trolley, fork lift, and crane as applicable. Sufficient manpower will be engaged as required for safe shifting and installation.
- Ensure that correct type and size of ventilation fan is shifted to the place of installation.
- Before placing, ensure air inlet and outlet orientation is as per approved drawing.
- Fan will be properly levelled and parallel to the room walls/other installation.
- Fix the fan with anti-vibration mounts/pans by recommended fittings.
- Fix the flexible duct connector to the fan inlet and outlet and other end of flexible connector to the fan related ducts, plenum boxes etc. as per approved drawing and manufacturer recommendation/instruction.
- Fan shall be inspected against damage during hoisting/shifting and installation.
- Clean the interior and exterior of the fan.
- Electrical power, control wiring, and earthing shall be carried out as detailed in respective approved electrical shop drawings and as per manufacturer recommendations.

Installation of Ceiling Suspended Ventilation Fans

- Check and ensure that clearance and proper access is available at the place of installation.
- Mark the support location as per approved drawing/manufacturers details and fix the approved anchor fastener in the slab.
- Fix the hanger rods and supports as per manufacturers instruction and approved detail drawings.
- Provide anti vibration isolator as applicable to the approval.
- Make sure easy access and sufficient clearance is available for maintenance and removal of the fan/motor.

- Shift the fan to the place of installation in a safe manner using hand trolley, fork lift, and crane as applicable. Sufficient manpower will be engaged as required for safe shifting and installation. Ensure that correct fan is shifted to the place of installation.
- Ensure air inlet and outlet orientation is as per approved drawing.
- Lift and install the fan carefully on the support. Engage sufficient manpower as required for safe installation.
- Check the level of the installation in coordination of other service and approved drawing.
- Cut and trim the support rod after finalizing the level, leave 25mm extra length of support rod for final adjustment.
- Ensure that the electrical engineer installs the field wiring, control and earthing of the equipment and tighten all the connections and terminals to the recommended torque.
- Electrical power connection shall be done as per approved drawings and manufacturers recommendation.
- Attach and fix identification labels on the equipment once the installation is complete.
- During installation & after the units have been successfully inspected, check & clean the unit from all debris and cover with polythene sheet to secure & protect the unit from moisture and dust ingress until such time as the units are available for commissioning.

Method of Ventilation Fan Connections (Ducted Installation)

1. Fix the flexible duct connector to the fan inlet and outlet and other end of flexible connector to the fan related ducts, plenum boxes, sound attenuator etc. as per approved drawing and manufacturer recommendation/instruction.
2. Installation of fan to turn or elbow should be at least one fan wheel diameter between the turn or elbow and the fan inlet to achieve full fan performance.
3. In case off discharge side to achieve full fan performance there should be at least three equivalent duct diameters of straight ductwork between the fan discharge and any duct turns.

Non Ducted installation

Installation of fan with an open inlet too close to a wall or bulkhead will cause reduced fan performance. It is desirable to have a minimum of one fan wheel diameter between the fan inlet and the wall.

Inspection and Testing of Ventilation Fans

- During installation, ensure that the ventilation fan complies with the specification requirements and notify the main contractor / consultant in advance at least 24hours before inspection time.
- In case of comments, rectify any installation defects and resubmit for approval.
- Ensure the presence / visit of a factory authorized service representative to inspect, test and adjust field assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing and submit to the consultant.
- Perform the following field tests and inspections and prepare test reports:
 - Disconnect and lock-out all power switches to fan.
 - Check all fasteners, set screws and locking collars on the fan, wheel, bearings, drive, motor base and accessories for tightness.
 - Rotate the fan wheel by hand and assure no parts are rubbing.
 - Check for bearing alignment and lubrication.
 - Check the v-belt drive for proper alignment and tension.
 - Check all guarding (if supplied) to ensure that it is securely attached and not interfering with rotation parts.
 - Check operation of variable inlet vanes or discharge dampers (if supplied) for freedom of movement.
 - Check all electrical connection for proper attachment.
 - Check housing and ductwork, if accessible, for obstruction and foreign material that may damage the fan wheel.
 - Check the proper wheel rotation by momentarily energizing the fan. Rotation should correspond to the rotation decal affixed to the unit.
 - If the fan has inlet vanes, they should be partially closed to reduce power requirements.
 - Fans with multi-speed motors should be checked on low speed during initial start-up.
 - Ensure proper wheel location for radial gap, overlap and alignment.
 - Grease may be forced out of bearing seals during initial star-up. This is normal self-purging feature of the bearing.
 - Check for unusual noise, vibration or overheating of bearings.
 - Remove and replace malfunctioning units and retest as specified above.