

# Method Statement for Installation of Air-Conditioning Split Unit

You can follow below simple steps for installing the split units on any project. These are general guidelines and can be used to prepare professional method statements for approvals and pre-qualification purposes. Mostly other sections should be included in the documents i.e. scope, responsibility and other resources including the method of safe working in the form of risk assessment of job safety analysis etc.

Before installation of split units make sure below tools are provided so that the work can be completed without interruption.

1. Mechanical Tool Box
2. Measuring Tape
3. Marker
4. Hack Saw Frame
5. Drill Machine with concrete bits 6mm to 16 mm
6. Anchor Bolts
7. Cutting wheel
8. Hammer

## **Pre Requirements**

- All the materials & equipment i.e. split units received at site will be inspected before accepting and any discrepancies or damages should be notified and reported to concerned authority for further action i.e. rejection or concession etc. Any materials found not complying the specification and suitable for site use will be removed from site immediately.
- Competent staff should be allowed to work on site and necessary training should be done before starting the work.
- Unloading and storage of split units shall be done carefully by using necessary manpower / shifting or lifting machinery / equipment to ensure that no damage is caused to the equipment.

## **Installation Sequence of Split Units**

- Prepare proper supports as per approved details and ensure split units are installed in level and plumb.
- Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.
- Install ground mounted, compressor condenser components on polyethylene mounting base.
- Install roof-mounted, compressor-condenser components on equipment supports specified in specifications.
- Install seismic restraints.

- Install suspending compressor-condenser components on restrained, spring isolators with a minimum static deflection of 1 inch (25 mm) or as per approved material for a specific site.
  - Install and connect pre-charged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.
  - Make connections to the refrigerant piping as per drawings indicating general arrangement of piping, fittings, and specialties. Where piping is installed adjacent to unit, allow space for future service and maintenance of unit.
  - In general if not indicated, connect piping with union and shutoff valves to allow units to be disconnected without draining piping.
  - Perform a pressure test and get necessary approvals from authorities / parties.
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## Method Statement for Testing & Commissioning of Split Units

The purpose of this procedure is to define the step by step method to implement the correct practices for the *pre-commissioning & commissioning* of “**Split Unit**” through the guidelines contained herein so as to ensure that the job execution complies with the project requirements and serves the intended function to satisfactory level.

### **Reference Documents**

1. Contract Specifications and Approved Shop Drawings
2. Approved Material Submittals
3. Manufacturer's Instructions

### **Tools / Equipment /Testing Instruments**

1. Digital Multimeter
2. Clamp Meter
3. Tachometer
4. Anemometer
5. Flow Hood Kit
6. Digital Thermometer
7. Psychrometer

### **Quality Control**

- In general, it shall be ensured by Site Engineer that product manufacturer's recommendations are followed and shall be monitored by Project engineer.

- The Project Engineer shall further oversee the Pre-commissioning and commissioning activity as per the approved method statement for Start-up and Commissioning of Split Units.
- The Split Units shall be tested under direct supervision of manufacturer / local dealer's representatives.

### **Split Unit Commissioning Procedure**

#### **Mechanical Checks**

- Carefully inspect the unit for any physical damages /dents.
- Check and ensure the shipping bolts / clamps are removed.
- Check tightness of all nuts / bolts, screws, fasteners, rubber vibration isolators etc. as applicable
- Check the piping connections as per approved drawings.
- Check the fan rotation freely by hand and the direction of rotations on initial start-up.
- Align the Unit in the direction of drain to maintain the gravity slope.

#### **Electrical Checks**

- Ensure the connected cables have been tested and verify the test reports.
- Check all terminations are complete and tightened as required.
- Check the cabling / wiring including grounding is completed and dressed neatly for thermostat.
- Ensure all identification and labelling is completed.
- Check the isolator is fixed close to the Split Units for emergency power shut-down.

#### **Start Up and Test Preparation**

- Check the line voltage before energizing the power
- Switch ON the power.
- Verify for the proper operation of the Split Units motor.
- Measure the current drawn (amperage) by Split Units and record the same.
- Verify proper operation of the thermostat, supply air temperature.
- Check for any abnormal noise and vibration on start-up. Rectify as / if required.
- After about an hour's operation, check that all nuts /bolts, screws, clamps etc. are tight and secure for external units.
- Record the Split Unit/External Unit name plate data in the commissioning format.
- Record the ampere / voltage drawn by the compressor / fan of the outdoor unit.
- Record the refrigerant pressure of the outdoor unit.
- Ensure it is within the limits as per the ambient temperature.
- Ensure compliance to the manufacturer's instruction as applicable.

**Health & Safety Requirements**

- All safety precautions shall be followed as per the established Project Safety Plan.
- Only experienced and skilled technicians shall be engaged for carrying out Start-up and Commissioning of Split Units.
- Safety Guards shall be in place and secured prior to start-up.
- Cable test reports shall be verified prior to energisation.
- Appropriate Warning signs and tapes shall be placed during start-up and commissioning as required.
- All PPE shall be worn as appropriate according to the nature of the job.
- Work area shall be maintained neat and clean.