

## Installation, Insulation & Testing of Condensate Drain Pipes (UPVC + GI)

This method statement covers on site installation of all condensate UPVC pipes for **fan coils drains** and galvanized pipework for AHU drains, including supports, expansion and anchor points for the condensate drainage system and insulation of the galvanized steel and UPVC pipework.

This method statement defines the method that will be used to ensure that the **condensate drain pipework system** comprising of all pipes, tubes, fittings and expansion and contraction devices hangers, anchors, supports and all accessories and components will be installed, as an integrated piping system. Also to ensure that installation and final connections and workmanship, is correct and acceptable and conforms to the contract documents and project specifications.

All high level and vertical pipework shall be UPVC solvent welded pipe. Pipes will be free from burrs, rust, scale and other defects and will be thoroughly cleaned before erection and prior to covering up. Materials to be submitted and reviewed by the client.

### **RESPONSIBILITIES:**

Site engineer, supervisor and QA/QC shall be responsible for implementation of this method statement during site construction works.

### **PREREQUIREMENTSBEFOREINSTALLATION**

- All materials and documentation relevant to condensate drain piping works will be checked by the site engineer/supervisor prior to the commence of work ensuring that these are of the correct type as per approved submittals and approved by the client.
- Prior to the commencement of any construction activity, areas and access will be inspected to confirm that they are in a suitable condition for pipe installation works to commence.
- Before commencement any construction activity, pre-inspections will be carried out on all material prior to them leaving the storage area.

### **METHOD OF INSTALLATION – GALVANIZED STEEL PIPE**

- Supervisor will instruct tradesmen regarding the execution of the works and will distribute all are necessary approved construction drawings of the latest revision. The supervisor will also check that tools, equipment and all materials available are in compliance with the contract requirements.

- Ensure that approved sleeves have been installed at the required locations and are of the same material as the service passing through them (these sleeves will be installed as civil structure progresses).
- By means of string and chalk lines the actual pipe layout will be identified, so as to allow for the installation of pipe supports and anchors.
- Condensate drain pipework will slope towards the drain discharge point. When using a spirit level a turn of the bubble shall be adequate to identify the correct slope.
- At discharge points either directly above the funnel drain on the grey water system or sump pit, the condensate discharge shall be visible, i.e. drain line and funnel will not be directly connected.
- All tees will be of the same size as the pipes connected to them, bushed outlets shall only be used if the required outlet size is not of standard manufacture.
- Reductions will be made by means of straight through reducing sockets, reductions on bends by bushes will not be used.
- Eccentric reducing sockets with the flat side at the top shall be used to avoid air entrapment in the system, and facilitate slope to drain of the pipework.
- Supervisor to ensure that where pipes cross construction expansion joints 'bellows' type expansion joints are installed in the system, as detailed on the construction drawings and in accordance with technical submission reviewed by the client.
- All pipework systems shall be provided with adequate removable sections to assist cleaning and for ease of maintenance operations.
- Supports will be arranged as near as possible to pipe joints and also in the case of change in direction. Additional supports will be added within 300mm of any branch lines.

### **GI PIPES JOINTING METHOD**

- Screwed pipe work and joints up to and including 50mm mild steel pipe.
- Pipe ends will be threaded by the use of an appropriate threading machine.
- The machine die head will be suitable to cut tapered type threads.
- Threads will be cut to the correct thread length.
- After the suitable thread has been cut, burrs, surplus oil and swarf will be removed prior to the selected fitting being screwed in place.
- Threads shall be applied with thread joint compound of the approved type.
- By means of an appropriate pipe wrench, the selected fitting will be screwed onto the pipe thread to the correct tightness required without causing any damage to the pipe/fitting.

- When pipe and fitting is fully tightened, clean of any excess jointing compound, and paint exposed threads with approved cold galvanizing compound.

### **METHOD OF INSTALLATION FOR UPVC PIPEWORK**

- Vertical pipework will be supported at the base or as indicated on the approved construction drawing.
- Condensate drains pipework will be installed so as to allow sufficient space for expansion or contraction and thermal insulation.
- Pipework will generally run parallel to the alignment of the adjacent building services, and as close to the construction as possible sloping towards the drain point.
- Pipework installed at high level over passages shall have a clear headroom of 2 metres from finished floor for plant operator.
- Pipework connections to equipment will be via three piece union and a sealed trap. The configuration will be sized to maintain a seal under full operating load, dirty filter and wet coil conditions, of the AHU and Fan Coil Units.

### **PIPE JOINTING METHOD FOR UPVC PIPES**

- Pipe solvent – welding for piping up to 80mm. Cutting will be done in a neat workman like manner without damaging the pipe and all ends chamfered and deburred.
- Using the correct cleaning solution, (in accordance with manufacturer's recommendations and instructions) pipe end and fitting will be thoroughly cleaned and de-oiled.
- Pipe end and fitting will be jointed without solvent, marked for alignment and depth socket.
- Remove pipe from fitting apply solvent cement, re-join pipe and fitting ensuring alignment and depth marks correspond.
- When carrying out this procedure ensure adequate ventilation is available, and suitable firefighting equipment is at hand. i.e., blanket and or extinguisher for extinguishing the fires.

### **AIR TESTING OF CONDENSATE DRAINAGE PIPING**

- Fully charge water seals of all condensate traps
- Insert test plugs in all open ends of pipework
- Test with air using hand pump with rubber hose connected to one test plug, via a female to nipple adapter.
- From another test plug on the system to be tested, connect rubber hose as item 9.3 and a manometer until a test pressure of 38mm water gauge is reached.
- This pressure will be maintained for 1 hour.

**WATER TESTING CONDENSATE DRAINAGE PIPING**

- Insert test plugs in all open ends of pipework.
- Fill pipe with water up to the flood point of the highest connection.
- The static head will not exceed 1200mm at the highpoint of the test and be a maximum of 2400mm at the low point.
- Maintain this pressure for 1 hour or as per specification requirements.