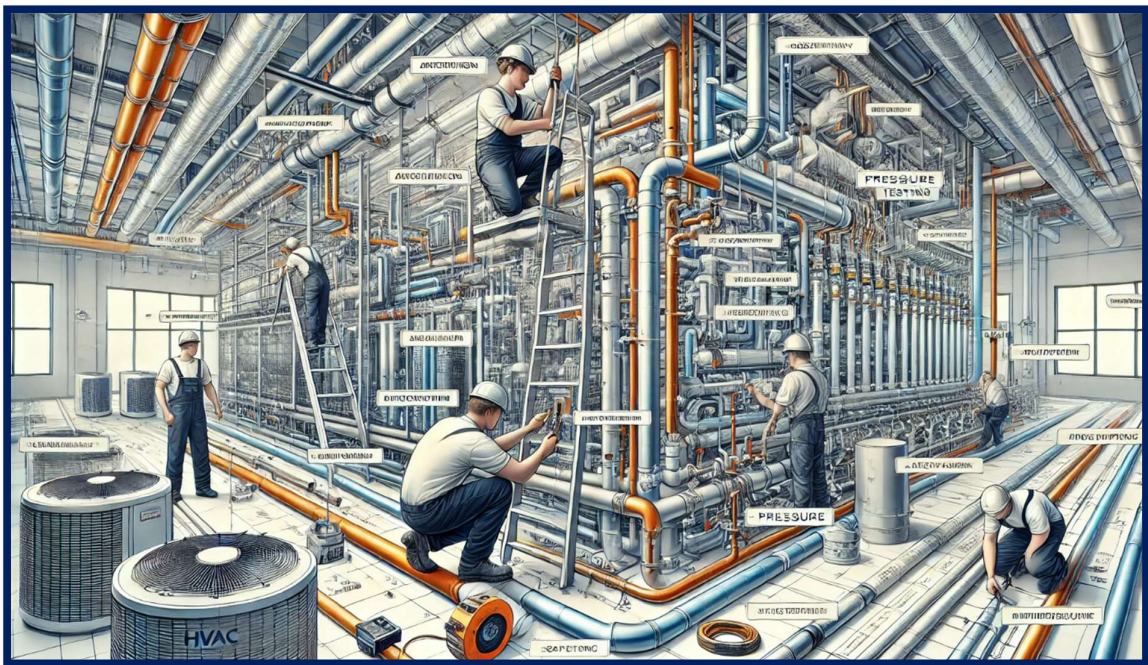




# METHOD STATEMENT FOR INSTALLATION & TESTING





## OF CHILLED WATER PIPING





|   |                                    |                  |                    |                                    |                          |                    |
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|    |                                    | <b>PROJECT</b>   |                    |                                    |                          |                    |
|   |                                    | <i>Client :-</i> |                    |                                    | MEP Contractor<br>(1804) |                    |
| <b><u>Method Statement Title</u></b><br>Installation and testing of Chilled Water Piping  |                                    |                  |                    | <b><u>Method Statement No.</u></b> |                          |                    |
|   |                                    |                  |                    | <b><u>Rev. No. &amp; Date:</u></b> |                          |                    |
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|   |                                    |                  |                    |                                    |                          |                    |
| 2   | Revised as per Consultant Comments |                  |                    |                                    |                          |                    |
| 1   | Issued for Approval                |                  |                    |                                    |                          |                    |
| 0   | Issued for Approval                |                  |                    |                                    |                          |                    |
|   |                                    |                  |                    |                                    |                          |                    |
| <b>Rev.</b>   | <b>Description</b>                 | <b>Date</b>      | <b>Prepared By</b> | <b>Reviewed By</b>                 | <b>Approved By</b>       | <b>Approved By</b> |
| <p><b>1.0 Scope :</b></p> <p>1.1 This method statement applies to installation, pressure testing, insulation and cladding of chilled water piping including valves and accessories, as per specification 15010, 15050, 15180, 151700.</p> <p><b>2.0 Purpose :</b></p> <p>2.1 Purpose of this method statement is to outline the method of storage, handling, fabrication, installation, pressure testing, insulation and cladding of chilled water piping including valves and accessories.</p> |                                    |                  |                    |                                    |                          |                    |


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|  |                  | <b><u>Rev. No. &amp; Date:</u></b> |                                  |
| <p><b>3.0 Material :</b></p> <p>3.1 <u>Pipes</u><br/>ERW, black steel, SCH 40, Grade 'B'</p> <p>3.2 <u>Fittings</u><br/>Upto 50mm dia. MI fittings, Black, threaded ends<br/>65mm dia and above – Steel Butt welding type/Grooved coupling joint type.</p> <p>3.3 <u>Valves</u><br/>Upto 50mm : Threaded ends<br/>65mm and above : Flanged ends</p> <p>3.4 <u>Accessories</u><br/>Pressure gauges, thermometer, test points, airvents, water meters, etc.</p> <p>3.5 Elastomeric Closed cell insulation, adhesives.</p> <p>3.6 <u>Supporting Materials</u><br/>Clevis hangers, MS angles / channels, threads rods, anchor fasteners etc. As per attached sketches.</p> <p><b>4.0 Method :</b></p> <p><b>4.1 Storage :</b></p> <p>4.1.1 All material while unloading shall not be dropped, but slowly lowered to the ground.</p> <p>4.1.2 For pipes, wooden supports shall be placed beneath at equal distance.</p> <p>4.1.3 Pipes shall be stacked on a flat surface with adequate supports.</p> |                  |                                    |                                  |
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| <p style="margin-left: 40px;">4.2.4 Check and ensure sufficient clearance around pipe for applying insulation / cladding as applicable.</p> <p style="margin-left: 40px;">4.2.5 Check the access and clear space around valves, vent points, drain points locations for maintenance and servicing.</p> <p style="margin-left: 40px;">4.2.6 Fabricate the structural supports form MS angles/channels as per support schedule as required.</p> <p style="margin-left: 40px;">4.2.7 Clean and apply primer / red oxide on all ERW black pipes.</p> <p><b>4.3 Installation :</b></p> <p style="margin-left: 40px;">4.3.1 Drill the holes in trench wall for fixing supports.</p> <p style="margin-left: 40px;">4.3.2 Fix the anchors and threaded rods with clevis hangers / structural supports as applicable. Threaded rod length shall be sufficient to allow for levelling of piping. Supports details as per attached sketches.</p> <p style="margin-left: 40px;">4.3.3 Cut the pipes accurately to measurements determined at site.</p> <p style="margin-left: 40px;">4.3.4 Prepare the pipe ends according to the type of joints ie. threaded joints, welded joints / grooved coupling joints.</p> <p style="margin-left: 40px;">4.3.5 The end preparation shall be done at site work shop.</p> <p style="margin-left: 40px;">4.3.6 For grooved joints pipe end should be square and cut with machine.</p> <p style="margin-left: 40px;">4.3.7 Flow process of grooving the pipe will incorporate a 1 Mtr long sprit level at least two nos. of pipe stands for 6 Mtr long pipe and a completion check for squareness.</p> <p style="margin-left: 40px;">4.3.8 Threading and grooving as applicable shall be done as per fittings / coupling manufacturers recommendations.</p> <p style="margin-left: 40px;">4.3.9 End preparations for welded joints shall be done as per approved welding procedure. Refer Method Statement MS-017 Rev. 02.</p> |                  |  |  |
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| <p>4.3.10 After the end preparation clean the pipe ends and ensure no material and dust is left inside.</p> <p>4.3.11 Depending on site conditions, assemble the piping into manageable lengths on the floor. Using threaded, welded/groove coupled jointing as applicable.</p> <p>4.3.12 Qualified and approved welders with current certificates shall be engaged for welding works.</p> <p>4.3.13 Install the pipe sections at heights as per approved drawing in a neat and tidy manner.</p> <p>4.3.14 Insert the approved hard insulating material of suitable thickness between the pipe and support.</p> <p>4.3.15 Align and level the piping as per approved drawings.</p> <p>4.3.16 Sleeves of suitable sizes shall be provided at wall crossings.</p> <p>4.3.17 Expansion grooved couplings shall be installed at locations as designated by specialist (Victaulic)</p> <p>4.3.18 Hole saw cutter shall be used to cut the holes in the pipe work for fixing branch connections for Victaulic fittings.</p> <p>4.3.19 Install the valves in locations as per approved drawings.</p> <p>4.3.20 Install the piping connections with valves and accessories wherever equipments are installed as per approved drawings.</p> <p>4.3.21 Fix the blind plugs / temporary valves on all drain, air vent, pressure gauge, thermometer and test points tappings approved drawings.</p> <p>4.3.22 Check and ensure proper supporting is provided as per approved drawings.</p> <p>4.3.23 Make temporary tapping provisions at multiple points for easy and quick filling and draining of pressure testing water.</p> |                  |                                    |  |
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| <p>4.3.24 Ensure all joints are properly tightened in line with manufacturer recommendation.</p> <p>4.3.25 While installation is going on of the pipe work, the insulation will be fitted to the pipe work prior to pressure testing as explained in 4.5 pipe insulation. <b>But all fittings and joints will be left exposed until the pressure testing and inspection is completed.</b></p> <p>4.3.26 Raise the “WIR” for piping installation by NMX QA/QC and consultant. Obtain signoff for hydraulic pressure testing.</p> <p><u>Note</u> : For installation and testing of chilled water piping (Preinsulated) Refer MS: M/002.A.</p> <p><b>4.4 Pressure Testing :</b></p> <p>4.1 The chilled water piping shall be tested according to the system working pressure and PN ratings of the pipes, pipe fitting and valves used in the piping.</p> <p>4.2 The piping may be tested in sections or in total, depending on site requirements.</p> <p>4.3 Estimate the piping volume and make arrangement for required quality of clean water.</p> <p>4.4 Arrange for temporary piping / hose pipe connections for filling and draining the water.</p> <p>4.5 Fix the temporary valves at air vent / drain points and pressure gauges.</p> <p>4.6 Fill the piping system with clean water.</p> <p>4.7 During initial filling, employ sufficient man power to monitor the entire length of the piping system for possible leakages.</p> <p>4.8 If leakages are observed, arrest the leakage immediately. If leakages are major, isolate the leaking portion with nearest isolating valve and / or stop the water filling.</p> |                  |                                    |  |
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| <p>4.9 Rectify the leakages and again fill wit water.</p> <p>4.10 Ensure no leakages throughout the entire piping system.</p> <p>4.11 Observe for the leakages and pressurise the system using hydraulic test pump.</p> <p>4.12 During pressurisation observe the joints and entire piping system for leakages.</p> <p>4.13 Pressurise the system till pressure on the pressure gauge at lowest part of the system indicates pressure.</p> <p>4.14 Observe the pressure gauges readings for 8 hours and ensure there is no drop in gauge pressure.</p> <p>4.15 Raise the “WIR” for witnessing the hydraulic pressure testing by NMX QA/QC and consultant.</p> <p>4.16 Obtain signoff with clearance for insulation only after satisfactory pressure testing.</p> <p><b>4.5 Pipe Insulation</b></p> <p>4.5.1 The pipe surface shall be thoroughly cleaned to remove dust, traces of oil, grease etc. All welded joints are painted with red oxide primer.</p> <p>4.5.2 For smaller pipe sizes, pre-formed insulation pipe section of suitable thickness, as per approved drawings/submittals to be used. For larger pipe sizes insulation sheet shall be used in thickness described in the materials submittal.</p> <p>4.5.3 Smaller pipe which are not exposed to direct sunlight and insulation is not susceptible for damage, insulation may be done by inserting the pipes in to insulation sections during pipe installation.</p> <p>4.5.4 When insulation is done after pressure testing following procedure shall be followed.</p> |                  |                                    |  |
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| <p>6.1 All safety precautions shall be followed as per established project safety plan and procedure.</p> <p>6.2 Warning signs shall be displayed while carrying out pressure testing.</p> <p>6.3 Only experienced and skilled technicians shall be engaged for carrying out installation and testing work.</p> <p>6.4 The people involved in the installation shall used PPE such as safety helmets, safety shoes, helmets, gloves etc. as required.</p> <p>6.5 Safety office shall check and ensure that all safety precautions are followed.</p> <p>6.5 Safety office shall check and ensure chat all scaffolding and ladders used at site are having duly signed tags.</p> <p>6.6 Hot work permit to be obtained before welding.</p> <p>7.0 <b>Records</b></p> <p>7.1 “WIR” duly singed by ETA/NMX QA/QC and consultant for</p> <ul style="list-style-type: none"> <li>i) Piping Installation</li> <li>ii) Pressure Testing</li> <li>iii) Insulation</li> </ul> |                  |  |  |
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