METHOD STATEMENT FOR INSTALLATION & TESTING



OF CHILLED WATER PIPING



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BUR] DUBAI PROJECT						
THE	RESIDENCES	Client :-		ME	P Contractor (1804)	
<u>Metho</u> Instal	Method Statement Title Installation and testing of Chilled Water Piping				<u>Method Statement No.</u>	
		Re	». No. & Date:			
2	Revised as per Consultant Comments					
1	Issued for Approval					
0	Issued for Approval					
Rev.	Description	Date	Prepared By	Reviewed By	Approved By	Approved By

1.0 Scope :

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.

2.0 Purpose :

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.

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3.0	Mate	rial :			
	3.1	<u>Pipes</u>			
		ERW, black steel, SCH 40, Grade 'B'			
	3.2	<u>Fittings</u>			
		Upto 50mm dia. MI fittings, Black, threaded ends			
		65mm dia and above – Steel Butt welding type/Gr	ooved coupling joint type.		
	3.3	ValvesUpto 50mm:65mm and above:Flanged ends			
	3.4	Accessories			
		Pressure gauges, thermometer, test points, airvents, water meters, etc.			
	3.5	Elastomeric Closed cell insulation, adhesives.			
	3.6	Supporting Materials			
		Clevis hangers, MS angles / channels, threads rods, anchor fasteners etc. As per attached sketches.			
4.0	Meth	hod :			
	4.1	Storage :			
		4.1.1 All material while unloading shall not be to the ground.	dropped, but slowly lowered		
		4.1.2 For pipes, wooden supports shall be placed	l beneath at equal distance.		
		4.1.3 Pipes shall be stacked on a flat surface with	th adequate supports.		

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4.1.4	End caps of pipes shall be in place until re	moved for installa	ation.
4.1.5	While stacking, it shall be ensured that pip below and smaller sizes on top.	bes of bigger sizes	s are placed
4.1.6	All pipes shall be covered and shall not be	exposed to direct	sunlight.
4.1.7	4.1.7 All other items such as valves, fittings, gauges, etc. shall be kept or racks within site stores and shall be segregated as per size, model, typetc. for easy retrieval.		
4.1.8 Elastomeric insulation shall be stored in manufacturer's shall not be exposed direct sun light.			backing and
4.1.9	Insulation material shall be segregated as retrieval.	per size, thickne	ess for easy
4.1.10	The adhesive material shall be stored i storage area.	n a covered and	l ventilated
4.1.11	All supporting materials shall be stored segregated according to size, type, model,	in a covered st etc. for easy retrie	orage area, wal.
4.1.12	Manufacturers instructions for storage sha items.	ll be followed for	r applicable
4.1.13	Any items found damaged or not suitable shall be removed from site. If required to be clearly marked and stored separately to	as per project restore temporarily prevent any adver	equirements y, they shall rtent use.
4.2 Prepar	ration :		
4.2.1	Check and ensure all drawings used fo approved for construction.	r installation are	latest and
4.2.2	Mark the pipe routing and support loc approved drawings.	ations in the tre	nch as per
4.2.3	Check the co-ordination of piping layout w pipe route with minimum bends/offsets.	with other services	and decide

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4.2.4	Check and ensure sufficient clearance insulation / cladding as applicable.	around pipe for applying	
4.2.5	Check the access and clear space aroun points locations for maintenance and service	d valves, vent points, drain cing.	
4.2.6	Fabricate the structural supports form support schedule as required.	MS angles/channels as per	
4.2.7	Clean and apply primer / red oxide on all E	RW black pipes.	
4.3 Installa	4.3 Installation :		
4.3.1	Drill the holes in trench wall for fixing sup	ports.	
4.3.2 Fix the anchors and threaded rods with supports as applicable. Threaded rod leng for levelling of piping. Supports details as		n clevis hangers / structural h shall be sufficient to allow per attached sketches.	
4.3.3	Cut the pipes accurately to measurements of	letermined at site.	
4.3.4	Prepare the pipe ends according to the type welded joints / grooved coupling joints.	e of joints ie. threaded joints,	
4.3.5	The end preparation shall be done at site w	ork shop.	
4.3.6	For grooved joints pipe end should be squa	re and cut with machine.	
4.3.7	Flow process of grooving the pipe will in level at least two nos. of pipe stands completion check for squareness.	corporate a 1 Mtr long sprit for 6 Mtr long pipe and a	
4.3.8	Threading and grooving as applicable sh coupling manufacturers recommendations.	all be done as per fittings /	
4.3.9	End preparations for welded joints shal welding procedure. Refer Method Statemer	1 be done as per approved nt MS-017 Rev. 02.	

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4.3.10 After the end preparation clean the pipe ends and ensure no material and dust is left inside.				
4.3.11	Depending on site conditions, assemble lengths on the floor. Using threaded, weld applicable.	the piping into manageable ed/groove coupled jointing as		
4.3.12	Qualified and approved welders with engaged for welding works.	current certificates shall be		
4.3.13	Install the pipe sections at heights as per and tidy manner.	approved drawing in a neat		
4.3.14	4.3.14 Insert the approved hard insulating material of suitable thickness between the pipe and support.			
4.3.15	5 Align and level the piping as per approved drawings.			
4.3.16	4.3.16 Sleeves of suitable sizes shall be provided at wall crossings.			
4.3.17	Expansion grooved couplings shall be designated by specialist (Victaulic)	e installed at locations as		
4.3.18	Hole saw cutter shall be used to cut the fixing branch connections for Victualic fitt	holes in the pipe work for ings.		
4.3.19	Install the valves in locations as per approv	ved drawings.		
4.3.20	Install the piping connections with valve equipments are installed as per approved d	es and accessories wherever rawings.		
4.3.21	Fix the blind plugs / temporary valves or gauge, thermometer and test points tapping	n all drain, air vent, pressure gs approved drawings.		
4.3.22	Check and ensure proper supporting is drawings.	provided as per approved		
4.3.23	Make temporary tapping provisions at r quick filling and draining of pressure testin	nultiple points for easy and ng water.		

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	4.3.24	4 Ensure all joints are properly tightened recommendation.	in line with manufacturer	
	4.3.25	5 While installation is going on of the pipe fitted to the pipe work prior to pressure test insulation. But all fittings and joints with pressure testing and inspection is complete	work, the insulation will be ting as explained in 4.5 pipe II be left exposed until the eted.	
	4.3.20	6 Raise the "WIR" for piping installation consultant. Obtain signoff for hydraulic pr	on by NMX QA/QC and essure testing.	
	<u>Note</u>	: For installation and testing of chilled water MS: M/002.A.	piping (Preinsulated) Refer	
4.4 Pressure Testing :				
	4.1	The chilled water piping shall be tested according pressure and PN ratings of the pipes, pipe to piping.	ording to the system working itting and valves used in the	
	4.2	The piping may be tested in sections or requirements.	in total, depending on site	
	4.3	Estimate the piping volume and make arra of clean water.	ngement for required quality	
	4.4	Arrange for temporary piping / hose pipe draining the water.	connections for filling and	
	4.5	Fix the temporary valves at air vent / drain p	oints and pressure gauges.	
	4.6	Fill the piping system with clean water.		
	4.7	During initial filling, employ sufficient man length of the piping system for possible leak	power to monitor the entire ages.	
	4.8	If leakages are observed, arrest the leakage major, isolate the leaking portion with nea stop the water filling.	immediately. If leakages are rest isolating valve and / or	

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4.9	Rectify the leakages and again fill wit water	
4.10	Ensure no leakages throughout the entire pi	bing system.
4.11	Observe for the leakages and pressurise the pump.	e system using hydraulic test
4.12	During pressurisation observe the joints a leakages.	nd entire piping system for
4.13	Pressurise the system till pressure on the proton the system indicates pressure.	essure gauge at lowest part of
4.14	Observe the pressure gauges readings for 8 drop in gauge pressure.	hours and ensure there is no
4.15	Raise the "WIR" for witnessing the hydrau QA/QC and consultant.	lic pressure testing by NMX
4.16	Obtain signoff with clearance for insula pressure testing.	tion only after satisfactory
4.5 Pipe I	nsulation	
4.5.1	The pipe surface shall be thoroughly clear grease etc. All welded joints are painted with	ned to remove dust, traces of oil, th red oxide primer.
4.5.2	For smaller pipe sizes, pre-formed inst thickness, as per approved drawings/subm sizes insulation sheet shall be used in this submittal.	ulation pipe section of suitable nittals to be used. For larger pipe ckness described in the materials
4.5.3	Smaller pipe which are not exposed to di susceptible for damage, insulation may be insulation sections during pipe installation.	rect sunlight and insulation is not of done by inserting the pipes in to
4.5.4	When insulation is done after pressure tes followed.	sting following procedure shall be

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	4.5.5 S	Slit the pipe insulation section, longitudin surface and longitudinal slit as recommend	ally and apply adhesive on in ed by manufacturer.	nner
	4.5.6 A	Apply the adhesive on the surface or ecommended by manufacturer.	f the pipe to be insulated,	, as
	4.5.7 Fix firmly the insulation on the pipe surface and hand press the insulation remove any air locks. The longitudinal seam shall be joined properly by h pressing.			on to nand
	4.5.8 Fix the elastomeric self adhesive tape over the longitudinal seam.			
	4.5.9 Continue the same procedure for successive lengths. Adhesive shall applied on circumferential joint properly. Seal the circumferential joint by fixing self adhesive tape.			l be t by
	4.5.10 For larger pipe sizes, cut the insulation sheet of suitable width to suit pi size. The length shall be as manageable as per site conditions.			pipe
	4.5.11 (Complete the insulation as explained earlie	r in point No. 4.5.6. to 4.5.9.	
	4.5.12 Under no circumstances insulated pipes shall be exposed to direct sunlight			nt.
	4.5.13 Vapour seal must be achieved 100%.			
	4.5.14 Raise the "WIR" for NMX QA/QC and consultants and obtain the signoff cladding wherever applicable.		f for	
5.0 Insj	pection			
5.1	"WIR" by pressure t	y NMX QA/QC and Consultant shall be a esting, joint insulation and signed by Cons	aised for piping installation, ultant.	
5.2	Inspection testing an	n shall be carried out as per installation d insulation stages.	checklist during installation,	
5.3	The entire installation work shall be supervised by the supervisors/engineers.			
6.0 Saf	ety			

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	6.1	All safety precautions shall be followed as pe and procedure.	r established project safety plan	
	6.2	Warning signs shall be displayed while carryin	g out pressure testing.	
	6.3	Only experienced and skilled technicians shall be engaged for carrying out installation and testing work.		
	6.4	The people involved in the installation shall used PPE such as safety helmets, safety shoes, helmets, gloves etc. as required.		
	6.5	Safety office shall check and ensure that all safety precautions are followed.		
	6.5 6.6	Safety office shall check and ensure chat all scaffolding and ladders used at site are having duly signed tags. Hot work permit to be obtained before welding.		
7.0	Recor	ords		
	7.1	"WIR" duly singed by ETA/NMX QA/QC and consultant for		
		i) Piping Installationii) Pressure Testingiii) Insulation		