NA

From: NA
Sent: Monday, January 19, 2009 5:37 PM
To: Engineer; Director; Admin
Subject: Master Specs - ACMV & FFAI

Attachments: MS ACMV Section 2 (112).pdf; MS ACMV Section 2 (113).pdf; MS ACMV Section 3 (114).pdf; MS ACMV Section 5 (115).pdf; MS FFAI Section 3 (116).pdf

OM-SC/003

Please note that the following Master Specifications have been updated as highlighted:

Air Conditioning & Mechanical Ventilation Installation

1. Section 2 - Air Handling and Cooling Equipment
2. Section 3 - Chillers, Cooling Tower & Pumps
3. Section 5 - Piping, Valves & Fittings


MS ACMV Section 2 (112).pdf (...


MS ACMV Section 2 (113).pdf (5...


MS ACMV Section 3 (114).pdf (4...


MS ACMV Section 5 (115).pdf (6...

Fire Fighting & Alarm Installation

1. Section 3 - Piping, Valves & Fittings


MS FFAI Section 3 (116).pdf (5...

Regards
NA

Alpha
Consulting Engineers Pte Ltd

FEEDBACK REPORT FORM

Ref No: 116-090109(S)

To: LCT / CCG From: CLM 9/1/09

Job No./Project: Master Specifications (FFAI)

(where applicable)

Source of feedback: Master Spec

Scope of Feedback: * ☐ Quality ☐ Environmental ☐ Administrative ☐ Contractual ☐ Technical ☒ Specification ☐ Others

Section A : Problem & Cause

Updating of BS standards (Current BS nos. are out of date)

Section B : Mitigating Action Taken, if any

Section C : Suggested Corrective Action

Section D : Approved Corrective Action

Document Affected * : ☑ Yes ☐ No Affected Document : F/3-5, 3-6 & 3-8

Approved By : [signature] Date : 16 Jan 09

Section E : Action

Action By : NA

Targeted Completion : end Jan 09

Actual Completion : 19 Jan 09 Verified By : _____

* *Mark [X] where appropriate*

Distribution: | | | | | | | |

09/01/09

3.10 Type of Pipework

The types and quality of all pipework used shall comply with the following schedule unless otherwise shown in the Specification Drawings or specified elsewhere in these Specifications:

(a) Sprinkler Installation Pipework - black mild steel to BS EN 10255 medium gauge.

(b) Air Vent Pipework - copper to BS EN 1057

(c) Drain pipework - galvanised mild steel to BS EN 10255 medium gauge.

(d) Hosereel Installation Pipework - galvanised mild steel pipe to BS EN 10255 heavy gauge.

(e) Wet Riser Installation - galvanised mild steel pipe to BS EN 10255 heavy gauge.

(f) Dry Riser Installation - galvanised mild steel pipe to BS EN 10255 heavy gauge.

For all pipe connections to valves, strainers and equipment, flanged or screwed joints shall be used. All screwed joints shall be made with Teflon or equivalent PTFE thread sealing tape; hemp or similar organic substances shall not be used.

30/11/95

3.11 Steel Pipe Jointing

For black steel pipeworks, all joints up to and including 65mm diameter shall be made by means of screwed connections. Pipes of 80mm diameter and above shall be joined by means of welding unless otherwise indicated in the Specification Drawings.

For galvanised steel pipeworks, all joints up to and including 65mm diameter shall be made by means of screwed connections. Pipes of 80mm diameter and above shall be joined by means of flanged or screwed connections. Welding of galvanised steel pipework shall not be permitted. In all cases where pipes are joined to flanged equipment, appropriate mating flanges shall be used. No screwed connections shall be allowed for vertical pipe risers.

09/01/09

3.12 Flanges for Steel Pipes

Flanges shall be of mild steel in accordance with BS EN 1092-1. All flanged joints shall be flushed and aligned, and shall be made with corrugated jointing rings, coated on both sides with the recommended jointing compound. All bolts shall be hexagonal- headed steel in accordance with the provisions of BS 916 complete with washers and nuts.

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3.13 Steel Pipe Fittings

All elbows, tees and other pipe fittings shall be proprietary make by recognised manufacturers and samples shall be submitted for the Architect's review before commencement of work.

For sprinkler pipework, all pipe fittings for branching, e.g. 'Tees', 'Crosses', etc. shall have branch outlets one size larger in diameter than the branch pipes unless otherwise specified or shown on the Drawings. Reducing sockets or bushings shall be used to connect the branch outlets and the branch pipes.

In all cases, galvanised pipe fittings shall be used on galvanised pipework and black pipe fittings on black steel pipework.

In general, all fittings shall be of the malleable iron type, but in all cases entirely suited to the working and testing pressures of the circuit concerned.

On all changes of direction, long radius elbows and sweep or 'pitcher' tees shall be used. Short elbow shall not be used unless otherwise agreed by the Architect. Bends, offsets and other pipe fittings formed by welding together segmented pieces will be rejected. Short fill-in sections of piping less than 150mm long shall not be welded to any pipe run unless otherwise agreed by the Architect.

Reduction in diameter for through-flow pipes shall be made by means of reducing sockets for vertical pipes only; for horizontal connections to pump suction, eccentric reducing sockets shall be used.

09/01/09

3.14 Valves, Cocks, etc. General

All valves, cocks, etc. shall be suitable for the working and test pressure of the system concerned. Valve flanges shall be in accordance with BS EN 1092-1 as specified for their respective service pipework. The nominal bore of any valve shall not be less than the bore of the pipe to which it is fitted.

Valves shall be fitted in accessible positions for operation and repair. The connection between each valve and the adjacent equipment shall be made either with a union or a flange for ease of dismantling.

Valve spindles shall be adequately lubricated with graphite, and all glands shall be freshly packed before installation. All valves shall be of the external spindle type. All valves must be 'righthanded', i.e. to shut valve the spindle must turn clockwise.

Valves supplied and fitted shall be of the same manufacture unless agreed by the Architect. Control valves shall be supplied only by manufacturer of control equipment.

All valves, cocks, etc. for the various services shall comply with the requirements of all Local Authorities including the Building Control Division, The Fire Safety and Shelter Bureau, Singapore Civil Defence Force, the Water Department of PUB as well as SS CP 52 where applicable. Where valves are located above 2 m from the floor level or in an inaccessible location they shall be operated by chain mechanism.

Valves used for working pressure above 19 bar shall be of the flanged cast steel type. The materials for valves and body as specified in the following clauses shall apply to lower working pressure only.

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3.15 Isolating Valves

Gate valves up to and including 80mm diameter shall be of gunmetal and shall have female screwed connections when fitted to steel pipe. Valves for copper pipe shall be of brass and shall have compression type connections for a size up to and including 40mm diameter. Such valves shall be of the fullway, split wedge disc pattern and with non-rising spindles made of high tensile steel and fitted with detachable cast iron handwheel.

Valves of 100mm diameter and above when fitted to steel pipes shall be of the flanged cast iron type, with inside screws solid wedge and with high tensile steel spindles fitted with detachable cast iron handwheel.

Valves of 80mm diameter and above when fitted to copper pipe shall be flanged and the flanges shall be similar to those detailed for steel pipework.

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3.16 Globe Valves

All modulating float valves shall be of float operated pilot control diaphragm type, globe or angle valve.

The pilot control system shall comprise of a variable orifice pilot control mounted on the valve cover with a remote float control.

The pilot control system shall modulate to maintain a constant water level in the water tank.

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3.22 Strainers

Strainers shall be the 'Y' type complete with removable stainless steel screen not greater than 56 mesh. Strainers up to and including 80mm diameter shall be of the screwed end bronze type. Strainers of 100mm diameter and above shall be of the cast iron type and flanged. All strainers shall be fitted with integral ball valves for draining.

09/01/09

3.23 Pressure Gauges

Pressure gauges shall be of the 100mm diameter brass cased type. They shall be designed for pipe mounting and be calibrated in mbar. All pressure gauges shall be of the Bourdon tube type and selected for normal operating point to be at about mid-point of the scale and with maximum scale value of the order of 150 per cent of the maximum working pressure. All pressure gauges shall be provided with suitable gauge cocks and snubbers to prevent vibration of the needles.

Pressure gauges shall conform to BS EN 837-1.

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3.24 Water Level Gauges

All water storage tanks shall be provided with water level gauges. Water level gauges shall be of the capillary glass tube in stainless steel casing to show the depth and quantity of water in the respective water tanks. The entire water level gauge shall be of standard proprietary make designed to give reliable service.

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3.25 Anti-Vibration Coupling

Piping connections to all pumps and all equipment shall be by means of stainless steel flexible connections. Limiting bolts shall be provided to limit excessive movement of pipes.

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3.26 Orifice Plates

Orifice plates shall be complete with matching flanges properly spaced, drilled and gasketed and complete with flange bolts. Tapping points shall be provided at both upstream and downstream of the orifice plates and shall be made in strict accordance with BS 1042 Part 1 and associated amendments.

Orifice plates shall be fitted as necessary in order to assist hydraulically balancing the system or to meet pump characteristic curve. The orifice plates shall be installed in accordance with SS CP 52.

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3.27 Earthing Boss

Earthing bosses shall be provided at the top and bottom of each and every pipe riser.

Earthing bosses shall be of the same material as the pipe and shall be welded to the pipes in an accessible location suitable for connection to the earthing system. Bosses shall be 50mm diameter with 10mm diameter clear hole and 7mm deep.