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: 114-090109(S)

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

Job No./Project: Master Specs. (ACMV)

(where applicable)

Source of feedback: _____

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

Section A : Problem & Cause

To include Compliance to NEA & CTI requirements.

Section B : Mitigating Action Taken, if any

Section C : Suggested Corrective Action

Section D : Approved Corrective Action

Document Affected * : ☑ Yes ☐ No Affected Document : A/3-11

Approved By : _____ Date : 16 Jan 09

Section E : Action

Action By : NA Ivan

Targeted Completion : end Jan 09

Actual Completion : 19 Jan 09 Verified By : _____

** Mark [X] where appropriate*

Distribution:							

Select only the type/types of cooling towers required
09/01/09

3.4 Cooling Towers

3.4.1 Induced Draught Cross Flow Cooling Towers

Mechanical induced draught cross flow cooling towers shall be supplied and fitted generally as shown in the Specification drawings. Each tower shall have a cooling capacity as detailed in the Schedule of Technical Requirements. The cooling tower complete with basin, fan, motor, tower in-fill, etc shall be suitable for the required working conditions.

The design, construction and installation of the cooling towers shall be strictly in accordance with the manufacturer's recommendation and comply with the Code of Practice for the Control of Legionella Bacteria in Air-Conditioning Cooling Towers in Singapore published by the National Environment Agency (NEA) including also all the requirements of Cooling Technology Institute (CTI).

All parts of cooling tower shall be prefabricated and supplied with detailed erection drawings to facilitate field assembly.

Each cooling tower basins shall be fitted with electrode type level sensing switches for connection to a buzzer and indicator light in the Main Supervisory Control Panel and Computer-based Control System to alarm in case of low water level. Electrodes shall be properly secured in the basin to prevent swaying.

Cooling towers floor supports shall be mounted on steel springs with travel limit stops in series with 2 layers of 8 mm thick neoprene waffle pads as specified in the Schedule of Vibration Isolation Equipment. The isolators shall be galvanised by the manufacturer to prevent rusting in an exposed environment. Cooling towers sump shall be suitably supported on adequately sized RSJ steel sections which shall be arranged to support the sump of each of the cooling tower.

Outer casings of cooling towers shall be constructed of fibreglass reinforced polyester suitable for a wind load of 240 kg/sq m. The frame work of the cooling tower body shall be galvanised through hot dipping to protect the steel members against corrosion. Fan supports and bracing plates after the fan discharge shall be aerodynamically designed to eliminate noise generation when the fan is in operation.

All hardware such as bolts, tension braces and other fasteners shall be of non-ferrous material.

In-fill shall be of non-corrosive, non-deteriorating type and shall be laid in a manner suitable for easy replacement.

~~Distribution pipes in the centre of the tower (counter flow type) shall be of the free rotating type enabling even distribution of the water over the in-fill.~~

Drift eliminators shall be in the form of baffles plates provided with the distributing pipes, offering minimum resistance to air-flow with maximum removal of entrained moisture from the air.

Cooling tower shall be complete with the standard connection for make-up, quick-fill, bleed, drain and over-flow pipes, and a permanent access ladder to provide convenient access to all parts of the tower. The drain shall be located at the lowest point of the basin with a drain valve to enable easy and complete draining of the entire system.

Fans shall be of high efficiency, adjustable pitch axial or propeller type, fabricated from corrosion resistant materials, specially selected for cooling tower service and be complete with non-corrodible bird screens on the discharge outlet. Bearings shall be of