

## **TECHNICAL SPECIFICATIONS**

### **HVAC WORKS**

#### **SECTION 1 - GENERAL REQUIREMENTS**

##### **1-01 MATERIALS**

All materials shall be of the highest grade, free from defects and imperfections, of recent manufacture and unused, and the classification and grades designated, conforming to the specifications and requirements of the latest issue of the appropriate standards cited herein. All materials, supplies, and articles forming part of major equipment and not fabricated by the manufacturer of the equipment shall be the products of the recognized reputable manufacturers.

##### **1-02 WORKMANSHIP**

Workmanship and general finish shall be of the highest grade, in accordance with the requirements specified herein, and the best latest standard practice.

##### **1-03 EQUIPMENT**

- a) All equipment shall be manufactured by companies which have had at least Ten years previous experience in the design and manufacture of equipment of comparable type, capacity and operating conditions, unless otherwise approved by the Engineer.
- b) When a manufacturer's product is specified by name, or equivalent, it shall be in the sole judgment of the Engineer as to acceptability of any product which is offered as equal to that specified.
- c) Where two or more units of the same class of equipment are furnished, product of the same manufacturer shall be used; component parts of entire system need not be product of same manufacturer.

##### **1-04 CHASES AND OPENINGS**

The Contractor shall provide templates or details for chases and openings to be left in walls and partitions to accommodate work under HVAC scope of works.

**1-05 PROTECTION**

The Contractor shall keep pipe, duct and other openings closed to prevent entry of foreign matter. All fixtures, equipment and apparatus shall be covered and protected against dirt, water, chemical or mechanical damage, before and during the construction period. All fixtures, apparatus, or equipment damaged including damaged shop coats of paint shall be restored to original conditions prior to Commissioning and also again prior to Final Acceptance.

All bright finished shafts bearing housings and similar items shall be protected until in service. No rust will be permitted.

**1-06 CUTTING, PATCHING AND REPAIRING**

Required (other than required in clause 1-04) for proper installation and completion of HVAC works, including masonry work, concrete work, carpentry work, painting and re-painting shall be performed by skilled craftsmen in respective trades, at expense of the Contractor, Construction shall be cut only after obtaining written permission from the Engineer.

**1-07 LINES, LEVELS AND SPACES**

The Contractor shall check dimensions at the building site and establish lines and levels for work specified in Specifications. The Contractor shall check with work of other trades to ensure proper clearance of piping, ductwork, conduit and other items. Any deviations observed between drawings and actual construction shall be brought to the notice of the Engineer. The erection supervisor shall regularly inspect, during progress of civil works, the areas allocated for installation of HVAC equipment and any conflict observed shall immediately be reported to the Engineer.

**1-08 MACHINERY GUARDS**

All moving parts of machinery are to be protected by strong guards to adequately protect all personnel working on or in the vicinity of equipment.

Wherever possible, moving parts should be protected by guards supplied by the equipment manufacturer. All guards must be strongly attached to equipment and should be designed for easy removal for access, servicing, adjustment & maintenance.

1-09 **TOOLS**

The Contractor shall supply in a tool box, full sets of tools suitable for maintenance of all components of the plant furnished by him including the electrical equipment, for use by the Employer after Final Acceptance.

1-10 **ACOUSTIC TREATMENT**

The noise criteria for different areas stated in Special Provisions is to be obtained.

Sound measurements will be made at approximately 1.5 m above floor level in the occupied area served and not more than 1.5 m from the grills, diffusers of the equipment being tested. Instruments for sound measurement shall be provided by the Contractor.

All equipment installed should not be audible inside the occupied areas and the Contractor must ensure that all equipment he is offering is quiet and ensuring satisfactory sound levels.