

<b>1</b>	<b>GENERAL .....</b>	<b>2</b>
<b>1.1</b>	<b>INTRODUCTION.....</b>	<b>2</b>
1.1.1	Scope .....	2
1.1.2	References .....	2
<b>1.2</b>	<b>REGULATIONS AND STANDARDS .....</b>	<b>2</b>
1.2.1	Qatar General Electricity & Water Corporation.....	2
1.2.2	Compliance with Standards .....	2
<b>1.3</b>	<b>CONTRACTOR'S RESPONSIBILITY .....</b>	<b>3</b>
1.3.1	General.....	3
1.3.2	Approval to Carry Out Plumbing Works .....	3
1.3.3	Registration of Plumbers and Plumbing Contractors.....	3
1.3.4	Notice of Intent .....	3
1.3.5	Existing Services .....	3
1.3.6	Maintenance Period Requirements.....	3
<b>1.4</b>	<b>CRAFTSMAN .....</b>	<b>3</b>
1.4.1	Workmanship.....	3
1.4.2	Qualifications .....	3
<b>1.5</b>	<b>MATERIALS .....</b>	<b>4</b>
1.5.1	General.....	4
<b>1.6</b>	<b>DRAWINGS .....</b>	<b>4</b>
1.6.1	Explanation of Project Drawings .....	4
1.6.2	Shop Drawings .....	4
1.6.3	Co-ordination Drawings .....	4
1.6.4	Record Drawings .....	5
<b>1.7</b>	<b>SITE WORKS .....</b>	<b>5</b>
1.7.1	Openings .....	5
1.7.2	Painting .....	5
1.7.3	Co-operation with other Trades.....	5
1.7.4	Protection of Finish.....	5
1.7.5	Clean-Up .....	5
<b>1.8</b>	<b>OPERATION AND MAINTENANCE MANUALS .....</b>	<b>6</b>
1.8.1	General Requirements.....	6

## 1 GENERAL

### 1.1 INTRODUCTION

#### 1.1.1 Scope

- 1 This Section specifies the requirements for the construction and installation of all works associated with the supply, storage and distribution of potable water, with the exception of those works normally undertaken by the Qatar General Electricity & Water Corporation (KAHRAMAA).
- 2 All regulations and requirements shall comply with the latest compulsory regulations or requirements issued by Qatar General Electricity & Water Corporation (KAHRAMAA).
- 3 The purpose of QCS is to provide as a general technical guide for acceptable construction work practices in the State of Qatar, considering this; any addition for technology, material, specification, standard that are not mentioned in this section or their modification, shall be subject to approval as stated in the introduction of QCS (00-02).

#### 1.1.2 References

- 1 Related Sections are as follows:-

Section 1	General
Section 9	Mechanical and Electrical

- 2 The following standards are referred to in this Section:

BS 6920.....Suitability of non-metallic materials and products for use in contact with water intended for human consumption with regard to their effect on the quality of the water

### 1.2 REGULATIONS AND STANDARDS

#### 1.2.1 Qatar General Electricity & Water Corporation

- 1 The Contractor shall conform to all the requirements of the "Rules and Regulations for Plumbing Works" as prepared by KAHRAMAA.
- 2 All works shall conform with Regulations of Internal Water Installations and Connection Works issued by Qatar General Electricity & Water Corporation "KAHRAMAA".

Note: issued herein and thereafter

#### 1.2.2 Compliance with Standards

- 1 It is required that certain products, components and materials covered in this Section comply with the provisions of particular standards (e.g. British Standards). Where there is a conflict between a particular referenced standard and the requirements of KAHRAMAA, the latter shall prevail.
- 2 The Contractor shall conform to any requirements KAHRAMAA may have with respect to ensuring that products, components and materials comply with any referenced standard. Such requirements may include, but not be limited to, samples, test results and supporting documentation.

## **1.3 CONTRACTOR'S RESPONSIBILITY**

### **1.3.1 General**

- 1 The Contractor is responsible for obtaining all necessary approvals and permits required to start and complete the Worksite.

### **1.3.2 Approval to Carry Out Plumbing Works**

- 1 Approval to carry out plumbing works must be obtained from KAHRAMAA for new installations and extensions or alternations to existing installations.
- 2 All approval procedures shall be as required by KAHRAMAA.

### **1.3.3 Registration of Plumbers and Plumbing Contractors**

- 1 All plumbers and plumbing contractors shall be approved by KAHRAMAA.
- 2 All KAHRAMAA water supply works shall be carried out by a contractor or sub-contractor pre-qualified and approved by the KAHRAMAA. Proof of such approval shall be required in writing prior to the Works commencing on Site and the name of any sub-contractor to be used shall be entered in the appropriate forms when the tender is submitted.

- 3 The plumbers must be had health certificate.

### **1.3.4 Notice of Intent**

- 1 The Contractor shall notify KAHRAMAA in writing at least 14 days prior to the commencement of any plumbing works.
- 2 During the course of the Works, KAHRAMAA or its nominated representative shall have full access to the Works.

### **1.3.5 Existing Services**

- 1 The Contractor is responsible for locating and identifying all existing services in the area of the work or likely to be affected by the Work.

### **1.3.6 Maintenance Period Requirements**

- 1 The Contractor is responsible for all the maintenance period requirements for all parts and components of the Works covered in this Section. Such requirements shall include, but not be limited to, the requirements of the Project Documentation and the manufacturer's recommendations.

## **1.4 CRAFTSMAN**

### **1.4.1 Workmanship**

- 1 Construction of each part of the Works covered in this Section shall be undertaken by experienced craftsman capable of performing the tasks allocated to them in a professional and competent manner.
- 2 If required by the Engineer, the Contractor shall instruct craftsman to demonstrate their ability to perform tasks allocated to him.

### **1.4.2 Qualifications**

- 1 Where the Project Documentation specifies that specialist craftsmen are required to undertake a specific work task, the Contractor shall furnish the Engineer with copies of qualifications pertinent to performing such work tasks for those craftsmen who will be undertaking the work.

## 1.5 MATERIALS

### 1.5.1 General

- 1 All materials, components and products shall comply with the relevant provisions of Section 1, General, subject to the provisions of Clause 1.2.2 of this Part.
- 2 All materials, components and products shall be supplied by experienced and approved manufacturers as designated in the Project Documentation and to the written approval of the Engineer.
- 3 All materials in direct contact with potable water shall have a health certificate issued by an international accreditation authority (Body) in accordance with required of BS 6920 and against to chlorine and chlorine dioxide.

## 1.6 DRAWINGS

### 1.6.1 Explanation of Project Drawings

- 1 For purposes of clearness and legibility, the Project Drawings are essentially diagrammatic, and although size and location of equipment are drawn to scale where possible, the Contractor shall make use of all data in all of the Contract Documents and shall verify this information prior to and during construction.
- 2 Scale and figure dimensions are approximate and are for estimating purposes only. Before proceeding with any part of the Work, the Contractor shall assume all responsibility for the fitting of his materials and equipment to other parts of the Works.
- 3 All work not shown in complete detail shall be installed in conformance with accepted standard practice and manufacturer's recommendations. KAHRAMAA specifications and requirement
- 4 All items shall be installed in a manner and in locations avoiding all obstructions, preserving headroom and keeping openings and passageways clear. Changes shall be made to the location of equipment and materials as may be necessary in order to accomplish this.
- 5 The drawings are essentially diagrammatic to the extent that many offsets, beds, traps, special fittings and exact locations are not indicated. The Contractor shall carefully study the drawings and premises in order to determine the best methods, exact locations, route, building obstructions, etc., and shall install all apparatus and equipment in the available locations.
- 6 Work indicated on drawings, but not mentioned in Specifications, or vice versa, shall be performed as if specifically mentioned or indicated by both. Any supplementary labour or materials required for a complete, approved, and properly operating installation shall be furnished by the Contractor.

### 1.6.2 Shop Drawings

- 1 The Contractor shall prepare shop drawings based on approved drawing for all parts of the Works to be installed or constructed under this Section and submit them to the Engineer for approval. The shop drawings shall include diagrams, illustrations, schedules, general arrangements of equipment and appurtenances in relation to buildings and structures, method statements and details of specialised installation and construction work.

### 1.6.3 Co-ordination Drawings

- 1 These shall be prepared by the Contractor to show how interdisciplinary work will be co-ordinated. The location, size and details of fixings, box-outs, ducts, holes, pipe chases and plinths shall be shown on the detailed layout drawings which are co-ordinated with all other work disciplines.

#### **1.6.4 Record Drawings**

- 1 The Contractor shall prepare Record Drawings of all works constructed or installed under this Section. These shall be prepared as work proceeds. They shall provide a record of any modification to materials and equipment, and to the layout, arrangement and installation of the Works.

### **1.7 SITE WORKS**

#### **1.7.1 Openings**

- 1 The Contractor shall co-operate with all trades in obtaining information as to openings required in walls, slabs and footings for all piping and equipment. Sleeves shall be accurately located and placed in forms before concrete is poured. Where several pipes pass through floors in close proximity, the Contractor may provide a single framed opening in lieu of individual sleeves. Framed openings shall be to the approval of the Engineer and shall be provided with 100 mm high curbs, on all sides or any other suitable protection as approved by the Engineer. The Contractor shall pay all extra costs for cutting of holes as a result of incorrect, delayed or neglected locations of sleeves or frame openings.

#### **1.7.2 Painting**

- 1 All finished painting shall be done as specified in the Project Documents. All apparatus and equipment, not specified otherwise, shall be provided with a shop prime coat. All exposed ironwork, tanks pipes, and fittings without factory finish, including pipe hangers and rods shall be primed and painted with one coat of black asphalt varnish suitable for hot surfaces. Exposed pipe threads in bare or insulated piping shall be thoroughly cleaned and painted with two coats of metallic paint or red lead.

#### **1.7.3 Co-operation with other Trades.**

- 1 The Contractor shall so organise work progress to harmonise with the work of all trades so that work may proceed as expeditiously as possible. The Contractor shall be responsible for the correct placing of the Works and the connection thereof to the work of all related trades.

#### **1.7.4 Protection of Finish**

- 1 The Contractor shall provide adequate means for, and shall fully protect, all finished parts of materials and equipment against damage from whatever cause during the progress of the work and until final completion. All materials and equipment in storage and during construction shall be covered in such a manner that no finished surfaces will be damaged or marred and all moving parts shall be kept perfectly clean and dry. All damaged or defective work shall be replaced prior to applying for final acceptance.

#### **1.7.5 Clean-Up**

- 1 During the progress of work, premises shall be kept reasonably free of the debris, waste materials and rubbish resulting from work carried out under this Section. Upon completion and before final acceptance of the Works, all debris, temporary protective coverings, rubbish, left-over materials, tools and equipment shall be removed from the Site. Exposed piping, machinery and other apparatus shall be thoroughly cleaned of cement, plaster, paint and other materials; grease and oil spots shall be removed with cleaning solvent. Surfaces shall be carefully wiped and all cracks and corners scraped clean. Chromium or nickel plated materials and equipment shall be thoroughly polished. The entire installation shall be left in a neat, clean and usable condition.

## **1.8 OPERATION AND MAINTENANCE MANUALS**

### **1.8.1 General Requirements**

- 1      The Contractor shall prepare Operation and Maintenance Manuals for all mechanical, electrical and electronic equipment installed under this Section.
- 2      Operation and Maintenance Manuals shall conform to the requirements of Clause 1.1.4 of Section 09 Part 01.

END OF PART

ARAB ENGINEERING BUREAU