

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 21 05 01 - Common Work Results for Mechanical.

### **1.2 REFERENCES**

- .1 American Society of Mechanical Engineers International (ASME)
  - .1 ASME B16.15-2013, Cast Bronze Threaded Fittings, Classes 125 and 250.
  - .2 ASME B16.18-2012, Cast Copper Alloy Solder Joint Pressure Fittings.
  - .3 ASME B16.22-2013, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
  - .4 ASME B16.24-2016, Cast Copper Alloy Pipe Flanges and Flanged Fittings, Class 150, 300, 400, 600, 900, 1500 and 2500.
- .2 ASTM International Inc.
  - .1 ASTM B88M-16, Standard Specification for Seamless Copper Water Tube (Metric).

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature and datasheets for insulation and adhesives, and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Place materials defined as hazardous or toxic in designated containers.

## **PART 2 - PRODUCTS**

### **2.1 PIPING**

- .1 Domestic hot, cold and recirculation systems, within building.
  - .1 Above ground: copper tube, hard drawn, type L: to ASTM B88M.

- .2 Buried or embedded: copper tube, soft annealed, type L: to ASTM B88M, in long lengths and with no buried joints.

## 2.2 FITTINGS

- .1 Bronze pipe flanges and flanged fittings, Class 150 and 300: to ASME B16.24.
- .2 Cast bronze threaded fittings, Class 125 and 250: to ASME B16.15.
- .3 Cast copper, solder type: to ASME B16.18.
- .4 Wrought copper and copper alloy, solder type: to ASME B16.22.

## 2.3 JOINTS

- .1 Solder: 95/5 tin copper alloy.
- .2 Teflon tape: for threaded joints.
- .3 Dielectric connections between dissimilar metals: dielectric fitting, complete with thermoplastic liner.

## 2.4 BALL VALVES

- .1 NPS 2 and under, screwed:
  - .1 Class 150.
  - .2 Forged Brass body, stainless steel ball, PTFE adjustable packing, brass gland and PTFE sPTFE sPTFE seat, steel lever handle. :l lever handle.
- .2 NPS 2 and under, soldered:
  - .1 To ASME B16.18, Class 150.
  - .2 Bronze body, stainless steel ball, PTFE adjustable packing, brass gland and PTFE seat, steel lever handle, with NPT to copper adaptors. seat, steel lever handle, with NPT to copper adaptors.

## **PART 3 - EXECUTION**

### 3.1 APPLICATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

### 3.2 INSTALLATION

- .1 Install in accordance with NPC, QBC and local authority having jurisdiction.
- .2 Assemble piping using fittings manufactured to ASME standards.
- .3 Install CWS piping below and away from HWS and HWC and other hot piping so as to maintain temperature of cold water as low as possible.
- .4 Connect to fixtures and equipment in accordance with manufacturer's written instructions unless otherwise indicated.

### 3.3 VALVES

- .1 Isolate equipment, fixtures and branches with ball valves.

### 3.4 PRESSURE TESTS

- .1 Conform to requirements of Section 21 05 01 - Common Work Results for Mechanical.
- .2 Test pressure: greater of 1 times maximum system operating pressure or 860 kPa.

### 3.5 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 21 05 01 - Common Work Results for Mechanical.

### **1.2 REFERENCES**

- .1 ASTM International Inc.
  - .1 ASTM B32-08 (R2014), Standard Specification for Solder Metal.
  - .2 ASTM B306-13, Standard Specification for Copper Drainage Tube (DWV).
- .2 Canadian Standards Association (CSA International).
  - .1 CSA B125.3-12, Plumbing Fittings.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature and datasheets for adhesives, and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle in accordance with Section 21 05 01 - Common Work Results for Mechanical.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
- .3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **PART 2 - PRODUCTS**

### **2.1 COPPER TUBE AND FITTINGS**

- .1 Above ground sanitary and vent Type DWV to: ASTM B306.
  - .1 Fittings.
    - .1 Cast brass: to CSA B125.3.
    - .2 Wrought copper: to CSA B125.3.
  - .2 Solder: tin-lead, 50:50, type 50A, to ASTM B32.

## **PART 3 - EXECUTION**

### **3.1 APPLICATION**

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

### **3.2 INSTALLATION**

- .1 Install in accordance with Provincial Plumbing Code and local authority having jurisdiction.

### **3.3 TESTING**

- .1 Hydraulically test to verify grades and freedom from obstructions.

### **3.4 PERFORMANCE VERIFICATION**

- .1 Cleanouts:
  - .1 Ensure accessible and that access doors are correctly located.
  - .2 Open, cover with linseed oil and re-seal.
  - .3 Verify that cleanout rods can probe as far as the next cleanout, at least.
- .2 Test to ensure traps are fully and permanently primed.
- .3 Ensure that fixtures are properly anchored, connected to system and effectively vented.
- .4 Affix applicable label (storm, sanitary, vent, pump discharge etc.) c/w directional arrows every floor or 4.5 m (whichever is less).

3.5 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION