UNIVERSITY OF MICHIGAN
ARCHITECTURE, ENGINEERING AND CONSTRUCTION

ARCHITECTURE & ENGINEERING
326 East Hoover, Mail Stop B
Ann Arbor, MI 48109-1002
Phone: 734-764-3414
Fax: 734-936-3334

BuildingName
The Description of the Project
P00000000 0000

SPECIFICATION DIVISION 22

NUMBER SECTION DESCRIPTION

DIVISION 22 PLUMBING
SECTION 220516 - PIPE EXPANSION JOINTS

END OF CONTENTS TABLE

DIVISION 22 PLUMBING
SECTION 220516 - PIPE EXPANSION JOINTS

REVISIONS:

2014-01-06: IMPROVED LEAD FREE REQUIRMENTS TO REFLECT U.S SAFE DRINKING WATER ACT REQUIREMENTS THAT WENT INTO EFFECT JAN. 4, 2014. D.KARLE FOR MTT.

APRIL 2018: REVISED TO LIST MFR.S FROM PML. R BENEDEK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

INCLUDE PARAGRAPH 1.1.A AND B IN EVERY SPECIFICATION SECTION. EDIT RELATED SECTIONS 1.1.B TO MAKE IT PROJECT SPECIFIC.

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections including the Related Sections listed below, apply to this Section.

1.2 SCOPE OF WORK:

A. Provide expansion joints per plans and specifications in the following systems.

1. Steam and Condensate Pipe
2. Heating Hot Water Piping
3. Domestic Hot Water and Recirculation Piping

1.3 QUALITY ASSURANCE

A. Manufacturers and Products: The products and manufacturers specified in this Section establish the standard of quality for the Work. Subject to compliance with all requirements, provide specified products from the manufacturers named in Part 2.

B. Reference Standards: Products in this section shall be built, tested, and installed in compliance with the specified quality assurance standards; latest editions, unless noted otherwise.

1. National Sanitation Foundation NSF/ANSI-61 (potable drinking water) and NSF-61 Annex G (listed as ≤ 0.25% weighted average lead content) (and/or NSF/ANSI-372) and Annex F. Applies to any item in contact with domestic (potable) water.
2. U.S Safe Drinking Water Act (any item in contact with domestic (potable) water).

1.4 PRICE BASIS

A. Base bid shall be based on "ADSCO" model RJ Rampack joints. Under Alternate x provide price, name and model for one other acceptable manufacturer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. For Slip Joints: ADSCO Manufacturing, Advanced Thermal Systems, Flexonics

B. For Bellows Joints: ADSCO Manufacturing Corruflex, Metraflex, Flexonics, Microflex, Twin City Hose, Hose Master LLC.

C. For slip type (packed) expansion joints only "ADSCO" model RJ Rampack is the acceptable manufacturer and model.

2.2 GENERAL

A. Conform to the standards of the Expansion Joint Manufacturers Association and shall be pressure rated for 60 PSI for low-pressure (9 lbs.) systems and for 175 PSI for high-pressure (60 lbs.) systems.

B. Expansion joints located in heating fin tube enclosures in the copper serpentine piping shall have bronze elements and external self-guide shell, bronze sweat ends and designed for 100 pounds of working pressure unless indicated otherwise.

C. Expansion joints sizes 2" and smaller shall have screw threads, welding or sweat ends. Joints 2-1/2 " and larger shall have 150 pound ASA standard flange ends unless indicated otherwise.

D. All bellows joints shall be pre-set at the factory and "held" with removable metal clips or strips tack welded across the flanges.

E. Provide guides of the type indicated at locations indicated in the plans.

F. All slip type expansion joints to be installed in the tunnels or main utility incoming lines shall be precompressed 1", to compensate for pipe contraction.

2.3 SLIP TYPE (PACKED) EXPANSION JOINTS

(USE FOR STEAM LINES IN TUNNELS AND UTILITY WORK.)

A. Expansion joints shall be packed slip type permitting the addition of new packing while joint is in service under full line pressure, externally/internally guided, single or double as scheduled, 150 or 300 lb. with weld or flanged end with base, drain and service connections as required suitable, 600 F. maximum operating temperature, and traverse as scheduled. Single expansion joints with base shall be suitable for main anchor. The inner end of each ring shall have a limit stop to prevent slip disengagement should an anchor fail.

B. Each expansion joint shall have a minimum of four (except 6" dia. or smaller) angle type extended packing gun or other special manufacturer recommended fittings to facilitate access to difficult to reach packing locations. These special packing fittings/extenders shall match existing in tunnels. Vendors are to visit the site or obtain a copy of previous shop drawing submittal from Owner. Provide "Van Stone" floating flanges at the slip end of joints.

C. Packing shall be semi plastic injectable asbestos free Teflon based or graphite based as recommended by manufacturer of the joints for this application.

D. Provide a shut off valve in the packing manifold in addition to the check valve.

E. Where the new expansion joints replace existing joints or are being installed in an existing line, the successful Bidder's representative (before submitting shop drawings for approval) shall visit the job site and obtain necessary field data to verify pipe sizes, to match existing flange to flange dimensions and make sure the joints will physically fit and operate without relocating existing pipes. Joint base heights may have to be custom measured to suit existing pipe location. If this cannot be done the supplier shall advise the mechanical contractor, who shall include necessary funds in his bids to relocate existing pipes, adjust or replace existing supports, guides and anchors. Flanges shall be "floating flanges" type construction to eliminate bolt hole misalignment with existing matching flanges.

F. Provide a drip connection and base for expansion joint as indicated in the plans.

2.4 EXPANSION COMPENSATORS: (BELLOWS TYPE JOINTS)

SPEC EDITOR: USE THESE IN SMALL SIZE BUILDING WORK: ECONOMICAL DESIGN

A. Bellows type expansion joints for iron and steel piping for condensate system shall be constructed with two ply stainless steel bellows and carbon steel shrouds, and end fittings. ADSCO model FASSI or equal by other acceptable manufacturers.

B. Bellows type expansion joints for hot water systems with copper piping shall be constructed from 2 ply phosphor bronze bellows, brass shrouds and end fittings. All internal parts shall be of non-ferrous metal. ADSCO model FASCBB or equal by other acceptable manufacturer

2.5 BELLOWS EXPANSION JOINTS (CONTROLLED FLEXING TYPE):

(USE THIS FOR CONDENSATE, DHW, AND DHWR LINES IN TUNNELS AND UTILITY WORK)

A. Expansion joints shall be multiply stainless steel bellows (high convolute design, low convoute design is not acceptable), with mated neck rings. Bellows shall be welded with minimum number of longitudinal seams and no circumferential seams. The joints shall be single or double with center anchor base where indicated and scheduled, with Van Stone flanges and with internal sleeves(joints are to be insulated). The joints shall be rated for 125 lbs. operating pressure and 500 degree F maximum operating temperature.

PART 3 - EXECUTION

3.1 GENERAL

A. The installations shall be in strict accordance with manufacturer's instructions.

B. During the commissioning period record the initial and final position and record actual movement of the joint.

END OF SECTION 220516