COLUMBIA UNIVERSITY
FACILITIES

DESIGN REQUIREMENTS

EXPANSION JOINTS AND LOOPS

GENERAL INFORMATION

1.1 This section applies to piping expansion systems.

1.2 Design piping systems in accordance with allowable stresses per ANSI B31.9 for building service piping and ANSI B31.1 for power piping.

DESIGN REQUIREMENTS

2.1 The consultant shall include expansion loops or incorporate expansion devices in all piping systems. Expansion loops shall be dimensioned, length and width, as well as where in the length of pipe the loop is to be located. Clearly indicate and dimension locations of guides and anchors. Fully detailed anchors and guides are the designer's responsibility and shall be clearly located on the drawings.

2.2 Provision for expansion shall be made in all piping by means of loops, bends, or offsets. Where pipe lines join or where branches occur, provisions shall be made for the expansion of both lines.

2.3 All anchors shall be separate and independent of all hangers and supports.

2.4 Anchors shall be fabricated and assembled in such a form as to secure the piping in a fixed position. They shall permit the line to take up its expansion and contraction freely in opposite directions away from the anchored points, and shall be so arranged to be structurally suitable for particular location, and line loading.

2.5 Piping shall be anchored to control expansion and prevent undue strain on the fittings and apparatus. Anchors shall be attached to pipe and fastened to structure. Provide steel for connection to structure if required.

2.6 Coordinate anchor forces with Structural Engineer.

2.7 Guides shall be welded or bolted to steel restraining supports which are bolted to building structural steel. Provide pipe guides to direct movement only along axis of pipe.

CONSTRUCTION REQUIREMENTS

3.1 Provide anchors and guides as indicated on plans or as required to properly restrain motion of piping without inducing undue pipe stress.

3.2 Guides shall be located and constructed wherever required or shown on drawings, to permit free axial movement only.

REFERENCE

4.1 The applicable CSI Specification Section is 23 05 16.