



# QUICK RESPONSE

Saving life and property through effective licensing, plan review, and inspection of fire protection systems.

February 2013

## VERTICAL FLOOR-TO-FLOOR PIPING RESTRAINT

Vertical floor-to-floor piping (risers) in multistory buildings may require additional restraint to prevent vertical movement of the pipe. These restraints are required when the vertical piping is installed utilizing flexible fittings and couplings. This restraint is needed to prevent accumulated vertical movement when the riser is pressurized.

By design, flexible couplings act as an “expansion joint”, allowing linear and angular movement of the pipe. They are designed with the coupling keys (A) engaging the pipe without gripping on the bottom of the grooves (B). Because the dimensions of the coupling key (A) are narrower than the groove in the pipe (B), and because the width of the coupling (C) allows for pipe end separation (D), there is room for controlled movement while maintaining the pressurized seal of the gasket (E).

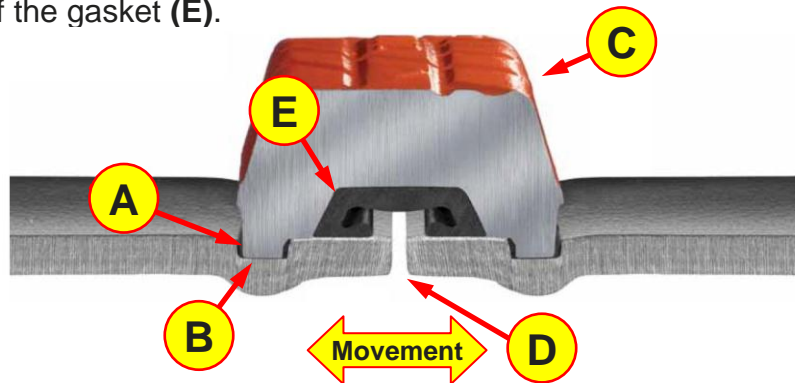


Exhibit 1

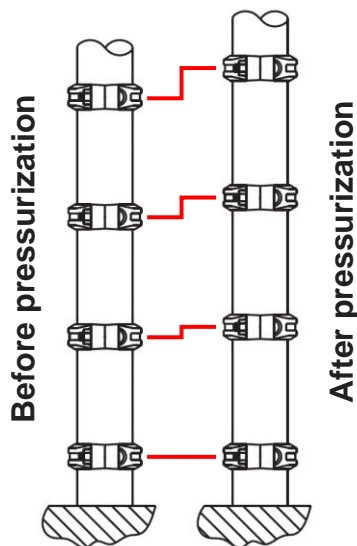


Exhibit 2

Upon system pressurization, each pipe end within the flexible couplings will expand. The coupling keys make contact with the face of the groove and restrain the joint. As indicated in Exhibit 2, this pipe movement will be accumulative.

Restraint is generally provided by use of a riser clamp at the underside of a floor slab (Exhibit 3). The spacing of the restraint should coincide with spacing of the riser support.



Exhibit 3