

**CHANGE TYPE:** Clarification

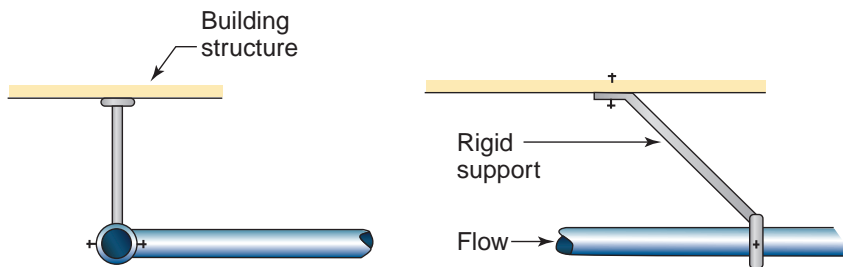
**CHANGE SUMMARY:** Additional information clarifies where sway bracing is needed for drainage piping.

**2018 CODE:** **308.6 Sway bracing.** Rigid support sway bracing shall be provided at Where horizontal pipes 4 inches (102 mm) and larger convey drainage or waste, and where a pipe fitting in that piping changes in the flow direction greater than 45 degrees (0.79 rad) for, rigid bracing or other rigid support arrangements shall be installed to resist movement of the upstream pipe sizes 4 inches (102 mm) and larger, in the direction of pipe flow. A change of flow direction into a vertical pipe shall not require the upstream pipe to be braced.

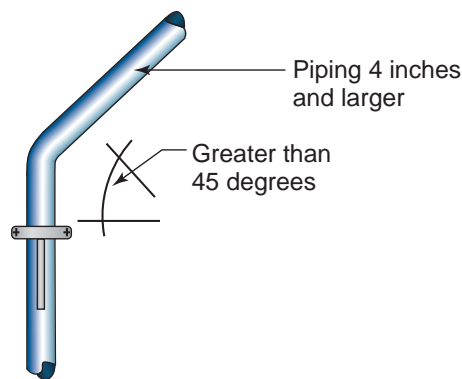
**CHANGE SIGNIFICANCE:** The piping sway discussed in this section is the result of drainage flow significantly changing direction because of turns in horizontal piping. The forces on the turning fitting (the elbow) cause the upstream piping to move axially. These movements can become amplified in the piping downstream of the fitting and causing the piping to sway (side-to-side motion). Such sway action could cause problems with piping joints and hanger systems. A change in horizontal direction that is 45 degrees or less is not considered to be significant enough to cause the piping system to move. Although the required sway bracing could also serve as a seismic support, as might be required in Section 308.2, the purpose of Section 308.6 is only for resisting flow-induced movements.

# 308.6

## Sway Bracing for Drainage Piping



ELEVATION VIEWS



PLAN VIEW

One method of anti-sway bracing

**CHANGE TYPE:** Modification

**CHANGE SUMMARY:** The code text was rewritten to clarify the intent with regard to “intermittent” operation.

**2018 CODE: 404.1 Enclosed parking garages.** Where mechanical ventilation systems for enclosed parking garages shall operate ~~intermittently~~ continuously or shall be automatically operated such operation shall be automatic by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Such detectors shall be listed in accordance with UL 2075 and installed in accordance with their listing and the manufacturers’ recommendations instructions. Automatic operation shall cycle the ventilation system between the following two modes of operation:

1. Full-on at an airflow rate of not less than 0.75 cfm per square foot [0.0038 m<sup>3</sup>/(s · m<sup>2</sup>)] of the floor area served.
2. Standby at an airflow rate of not less than 0.05 cfm per square foot [0.00025 m<sup>3</sup>/(s · m<sup>2</sup>)] of the floor area served.

**2015 CODE: 404.2 Minimum ventilation.** Automatic operation of the system shall not reduce the ventilation airflow rate below 0.05 cfm per square foot (0.00025 m<sup>3</sup>/s · m<sup>2</sup>) of floor area and the system shall be capable of producing ventilation airflow rate of 0.75 cfm per square foot (0.0038 m<sup>3</sup>/s · m<sup>2</sup>) of floor area.

**CHANGE SIGNIFICANCE:** This code section has been misinterpreted regarding intermittent operation. No technical changes were made, rather the text was rewritten to make it clear that the garage exhaust system can never shut off completely. The exhaust is either full-on all of the time, or it is allowed to be cycled between full-on and minimum-on by CO and NO<sub>2</sub> detectors. “Intermittent” operation implied that the system could shut off completely, which was never the intent. The detectors determine when the exhaust system goes from standby (minimum rate) to the full-on rate. If the system is operated in a continuous mode without detectors, then it would operate at the full-on rate continuously.



Photo courtesy of iStock.com

Continuous or automatic mechanical ventilation is required for enclosed parking garages. Automatic ventilation must cycle between full-on and standby airflow rates.

## 404.1

### Mechanical Ventilation of Enclosed Parking Garages

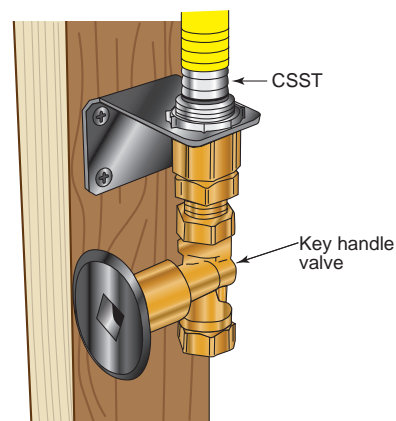
**CHANGE TYPE:** Addition

**CHANGE SUMMARY:** New text addresses shutoff valve support for tubing systems.

**2018 CODE: 409.7 Shutoff valves in tubing systems.** Shutoff valves installed in tubing systems shall be rigidly and securely supported independently of the tubing.

**CHANGE SIGNIFICANCE:** Shutoff valves at appliances such as furnaces, water heaters and boilers are typically supported by rigid steel piping, where CSST or other tubing connects to the shutoff valve inlet, and the valve is supported on its outlet side by rigid piping. However, if a shutoff valve, such as a concealed T-handle keyed valve for a fireplace, is installed in a run of CSST or other tubing material, the torque applied to the valve rotating member will transfer to the tubing, causing stress and possible tubing failure. This new code requirement is consistent with the manufacturer’s installation instructions for CSST. The method of support could be a bracket made for the purpose or it could be accomplished with securely anchored rigid steel pipe nipples on the inlet and outlet sides of the valve. The intent is to prevent movement and stressing of the tubing.

## 409.7 Shutoff Valve Support for Tubing Systems



Key handle valve with support independent of gas tubing

Photo courtesy of OmegaFlex

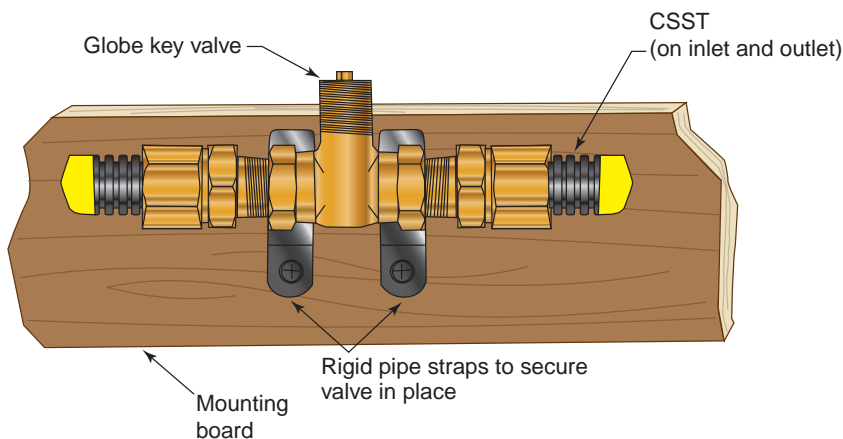


Photo courtesy of OmegaFlex

Shutoff valves require support independent of gas tubing.