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## Anti-Scald Valves

Many plumbing systems of newly-constructed and / or renovated homes and buildings are being equipped with a type of safety device known as an **Anti-Scald Valve** (sometimes also known as a *tempering* or *mixing* valve). As Industry Professionals, it is helpful to understand the purpose and basic function of this type of safety device.

The Anti-Scald Valve mixes cold water with outgoing hot water so that the hot water that leaves a fixture or faucet is not at a temperature that can cause scalding or burning of skin.



### FACTS AND FIGURES

- Hot water scalds account for 20% of all burns that occur in the home each year.
- More than 2,000 kids in the US are scalded each year, with the majority of the scalds occurring in either in the bathroom or kitchen.
- Scalding and other types of burns require costly and expensive hospital stays, often involving skin grafts and plastic surgery.
- Scalding may lead to additional injuries, such as falls and heart attacks, especially among the elderly.
- 160° F water can cause scalding in less than 1 second (0.5 sec).

### WHY INSTALL AN ANTI-SCALD DEVICE?

Unwanted hot water temperature fluctuations can be both an annoyance and a safety hazard.

When a toilet is flushed, for instance, cold water flows into the toilet's tank, lowering the pressure in the cold-water supply piping. Should this occur during a shower, the water will become much hotter as less cold water is available to the shower faucet mixing valve.



By the same principle, shower water can become much colder when a hot water faucet is opened in another part of the home. This condition can be amplified if the dwelling's plumbing supply lines are slightly clogged, are narrow, or installed in showers with low-flow or multiple shower heads.



A sudden burst of hot water has the potential to cause serious skin burns, particularly in young children, whose skin is thinner than that of an adult.

Also, a startling thermal shock – hot **or** cold – may cause a person to fall in the shower as he or she scrambles on the slippery shower surface in an effort to adjust the water temperature. The elderly and physically challenged are at particular risk.

The Anti-Scald Valve can mitigate this danger by maintaining water temperature at a constant safe level, even as pressures fluctuate in water supply lines.

## BASIC DESCRIPTION AND OPERATION

An Anti-Scald valve looks similar to an ordinary shower and tub valve.

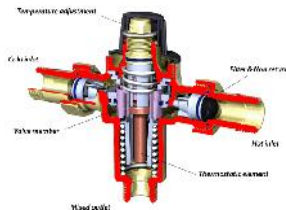
It is equipped with a special diaphragm / piston mechanism that immediately balances the pressure of the hot and cold water, limiting one or the other to maintain the water temperature within a pre-set temperature range.

## INTERESTING FACT

An interesting side-effect and “unintended benefit” of the use of an anti-scald valve is that *it actually increases the amount of available hot water* because the hot water is drawn more slowly from the water heating system during normal operation!

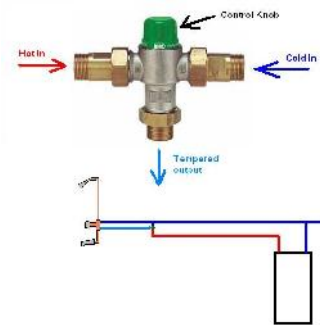
## TEMPERATURE ADJUSTMENT

The actual temperature of the water that comes out of the fixture may be somewhat different than the target temperature set on the anti-scald valve, and therefore must be compensated for. These temperature irregularities can be due to long, un-insulated plumbing lines or defects in the valve itself. The hot water temperature can be “fine-tuned” at the valve by adjusting a rotating mechanism that allows the water to become hotter or colder, depending on which way it’s turned.



Installation of anti-scald valves is typically simple and inexpensive.

Most models that are currently in use are installed in the hot-water supply line and only require a cold-water feed connection. They may also be installed at the water heater outlet line to control the hot water temperature for the whole building or dwelling.



Anti-scald valves are an inexpensive safety device that can prevent personal exposure to excessively high water temperature in a home or building. Familiarity with their basic operation can be beneficial to all Industry Professionals when providing advice and guidance to clients.