

TEMPERING VALVE SUBMITTAL INSTALLATION

The tempering valve **MUST** be installed as described below. When installed correctly, the tempering valve will maintain the desired water temperature $\pm 2^{\circ}\text{F}$.

VALVE ORIENTATION

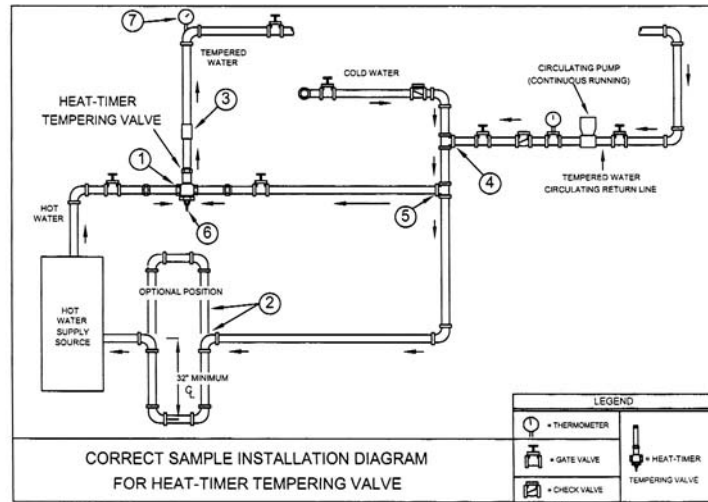
- The valve can be installed in any position. It is not necessary to pipe the valve so it is vertical or horizontal.
- Choose a location with at least 28" of clearance in front of the adjusting screw (#6 on the diagram below). This will allow access to internal components in the future.

CONNECT THE HOT PORT

- The **HOT** inlet port is clearly marked "HOT" on the valve body.
- Connect the hot water supply source to the **HOT** port as shown at #1 on the diagram below.
- The hot water supply source **MUST** be able to provide water at least 20°F hotter than the desired outlet temperature even under maximum flow conditions.

INSTALL THE THERMAL HEAT LOOP

- The cold water line to the *hot water supply source* **MUST** have a Thermal heat loop as shown at #2 on the diagram below.
- The Thermal heat loop can be installed either up or down, but must be a minimum of 32 inches as measured from center to center.
- The Thermal heat loop prevents the higher temperature water in the hot water supply source from backing up and entering the cold water inlet side of the Heat-Timer tempering valve. As this heat transfer will occur when there is little or no flow in the system, check valves or spring checks can **NOT** be used.



CONNECT THE OUTLET PORT

- The **OUTLET** port is clearly marked "OUTLET" on the valve body.
- The tempered water supply to the system should be taken from the brass pipe on the **OUTLET** port as shown at #3 on the diagram.
- To adjust the valve properly, install a thermometer (#7 on diagram) in the tempered water line a minimum of 6 to 10 feet downstream from the outlet end of the tempering valve and before any tempered water supply feeds.

CONNECT THE TEMPERED WATER RETURN LINE

- The tempered water return line must be connected so it will return to the cold water supply of **BOTH** the hot water supply source **AND ALSO** the cold water inlet side of the tempering valve as shown at #4 of the diagram.
- A circulating pump **MUST** be installed on this return line, and **MUST** run continuously.
- The temperature of the tempered water circulating return line should be at least 7° less than the outlet temperature of the valve. If the return line does not drop the 7°, the water temperature at the outlet will begin to rise.
- It is beneficial to install a thermometer in the return line as close to the connection of the main cold water line as possible.

CONNECT THE COLD PORT

- The cold water line to the valve must be taken from the main cold water supply line **AFTER** the tempered water return line as shown at #5 on the diagram. This is due to the fact that when there is no flow, no cold water can enter the system. By bringing the cooler return water into the cold port, the valve can maintain the correct water temperature.

WARNING

The Heat-Timer tempering valve is a primary tempering valve and is **NOT** designed or recommended to be used as a "Failsafe" or "Anti-Scald" valve. For safety, it may be required to install separate anti-scald and safety devices.

ADJUSTING THE TEMPERING VALVE

First check that the valve has been installed in the manner described in the previous section. Then, carefully follow these steps to correctly adjust the outlet water temperature:

- Turn adjusting screw (#6 on diagram) into the valve body (clockwise) until only approximately 3/4" of the screw extends from the end of the bonnet.
- If possible, open the control valve on the cold water supply line to the tempering valve.
- Next, open the control valve on the outlet end of the tempering valve.
- Open a few faucets on the tempered water line and keep them running while adjusting the valve.
- Now, open the control valve from the hot water supply source to the tempering valve.
- Note the temperature of the tempered water circulating return line. It must be at least 7°F cooler than the desired outlet temperature. If not, turn off the return pump, and allow the system to cool to this point.
- Turn the adjusting screw out (counterclockwise) the recommended number of turns (chart below). Each turn will change the outlet water temperature approximately 7°.
- Wait two minutes after turning the screw before reading the temperature of the outlet tempered water.
- Repeat steps 7 and 8 until the desired outlet temperature is attained.

Valve Size	Adjusting Screw Turns
1/2"	1/2 Turn at a time
3/4"	1/2 Turn at a time
1"	1/2 Turn at a time
1-1/4"	1 Turn at a time
1-1/2"	2 Turn at a time
2"	2 Turn at a time
2-1/2"	3 Turn at a time
3"	3 Turn at a time
4"	3 Turn at a time

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