

E. Applications

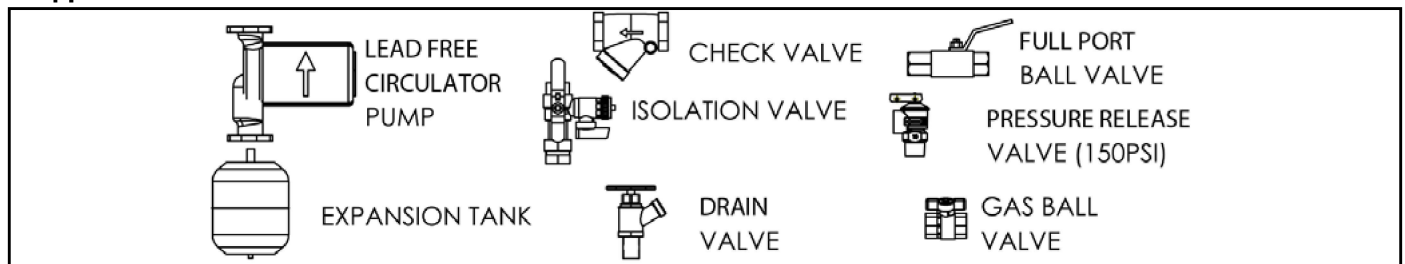


Figure 6 - Piping Symbol Legend

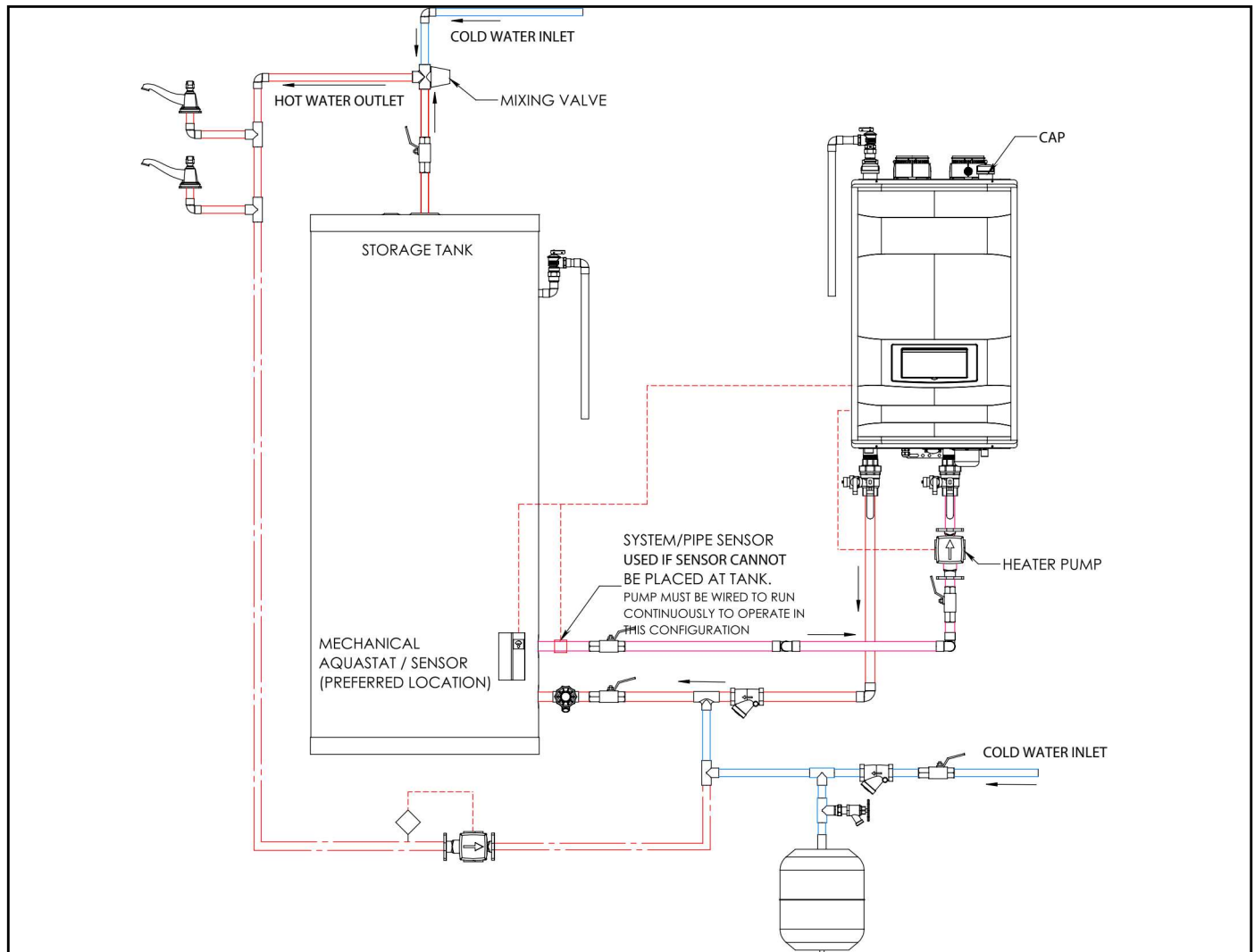


Figure 7 - Water Heater with Storage Tank

NOTES:

1. Minimum pipe size should match connection size. Upsize pipe accordingly if greater flow is required.
2. A thermal expansion tank suitable for potable water must be sized and installed within this piping system between the backflow preventer and the cold water inlet.
3. All circulators should have an integral flow check.
4. Drains and shutoff valve between water heater and piping will assist in purging air from system.
5. These drawings are meant to demonstrate system piping only. The installer is responsible for all equipment and detailing required by local codes.
6. In Massachusetts, you must install a vacuum relief valve per 248 CMR.
7. Mixing valve application is optional, but recommended to help prevent scalding.
8. Always shut off power to the water heater or isolate the heater from the system if ANY plumbing work is to be done. Running the water heater without water will result in dry-firing.
9. The setpoint of the water heater needs to be at least 20°F higher than the setpoint of the Aquastat / Tank Sensor / System Pipe Sensor.

NOTE: The preferred installation requires that an Aquastat or Tank Sensor be installed in a sensor well provided on the storage tank. If a sensor well is not available, a System Pipe Sensor may be installed on the return piping near the storage tank. However, when using a System Pipe Sensor, the pump **MUST** be wired to run continuously. In this configuration, this pump **CANNOT** BE POWERED BY THE WATER HEATER.

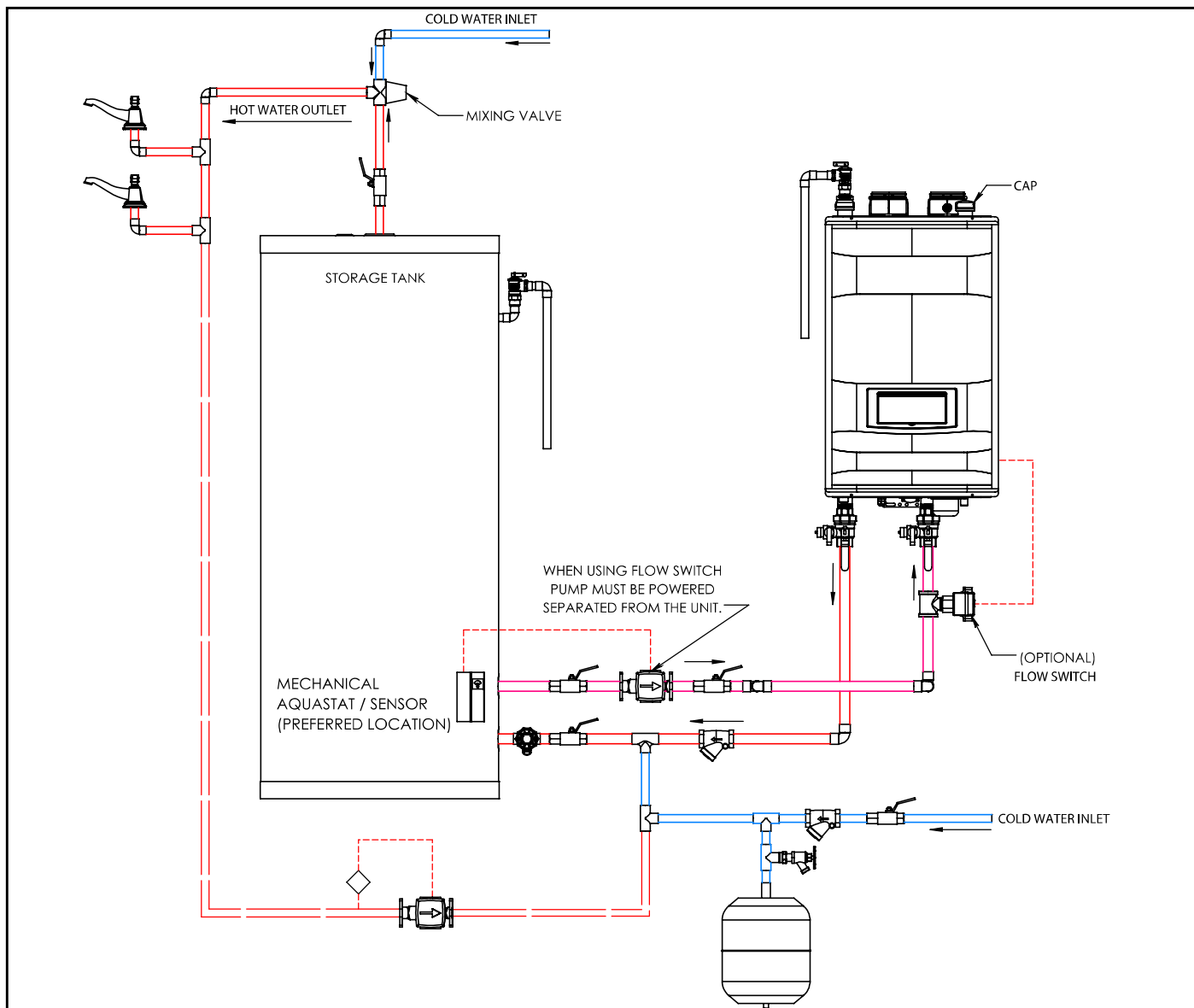


Figure 8 - Water Heater with Storage Tank and Optional Flow Switch

NOTES:

1. Minimum pipe size should match connection size. Upsize pipe accordingly if greater flow is required.
2. A thermal expansion tank suitable for potable water must be sized and installed within this piping system between the backflow preventer and the cold water inlet.
3. All circulators should have an integral flow check.
4. Drains and shutoff valve between water heater and piping will assist in purging air from system.
5. These drawings are meant to demonstrate system piping only. The installer is responsible for all equipment and detailing required by local codes.
6. In Massachusetts, you must install a vacuum relief valve per 248 CMR.
7. Mixing valve application is optional, but recommended to help prevent scalding.
8. Always shut off power to the water heater or isolate the heater from the system if ANY plumbing work is to be done. Running the water heater without water will result in dry-firing.

9. The setpoint of the water heater needs to be at least 20°F higher than the setpoint of the Aquastat / Tank Sensor / System Pipe Sensor.

NOTE: The preferred installation requires that an Aquastat or Tank Sensor be installed in a sensor well provided on the storage tank. If a sensor well is not available, a System Pipe Sensor may be installed on the return piping near the storage tank. However, when using a System Pipe Sensor, the pump **MUST** be wired to run continuously. In this configuration, this pump **CANNOT** BE POWERED BY THE WATER HEATER.

NOTE: A FLOW SWITCH IS NOT REQUIRED FOR THIS INSTALLATION, but may be required by local codes or installation requirements. Adding a flow switch **INCREASES** PRESSURE DROP through the water heater.

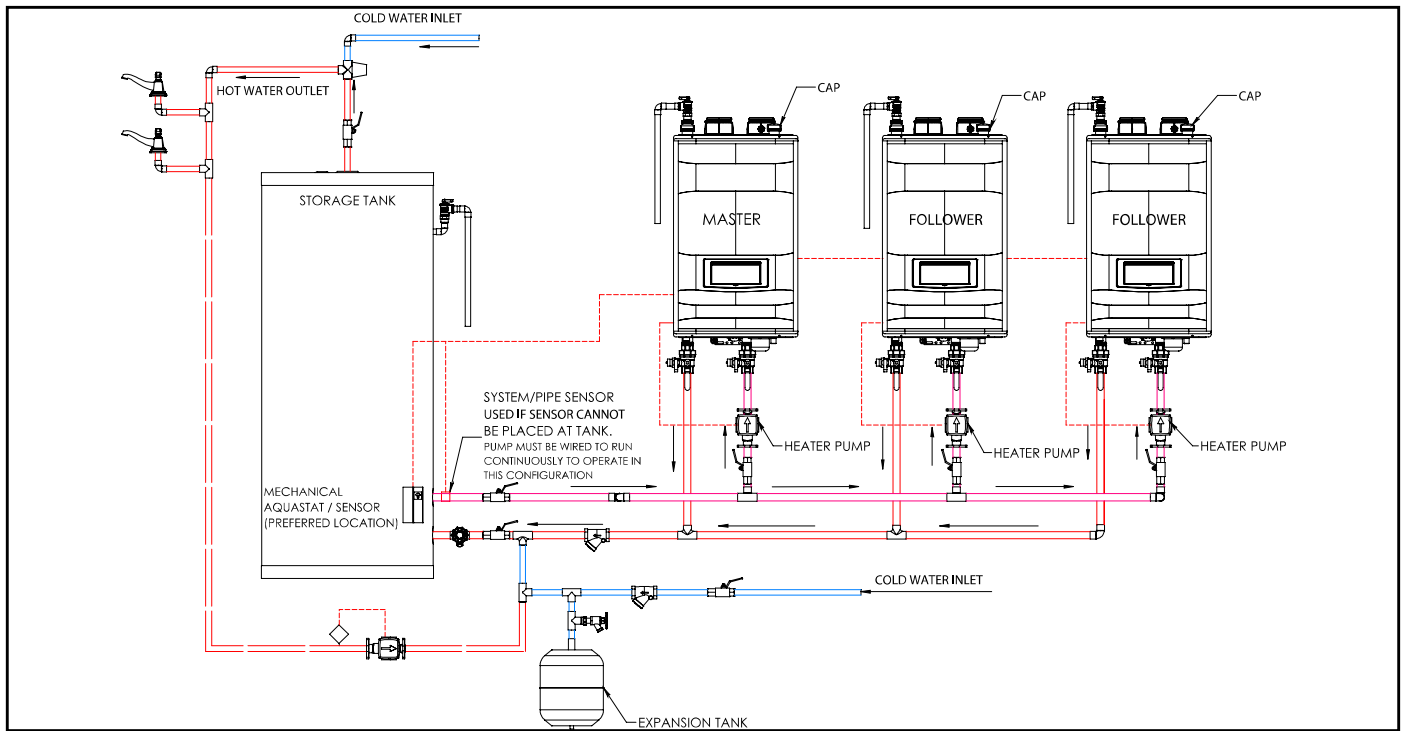


Figure 9 - Cascaded Water Heaters w/Storage Tank, Individual Pumps, and Recirculation

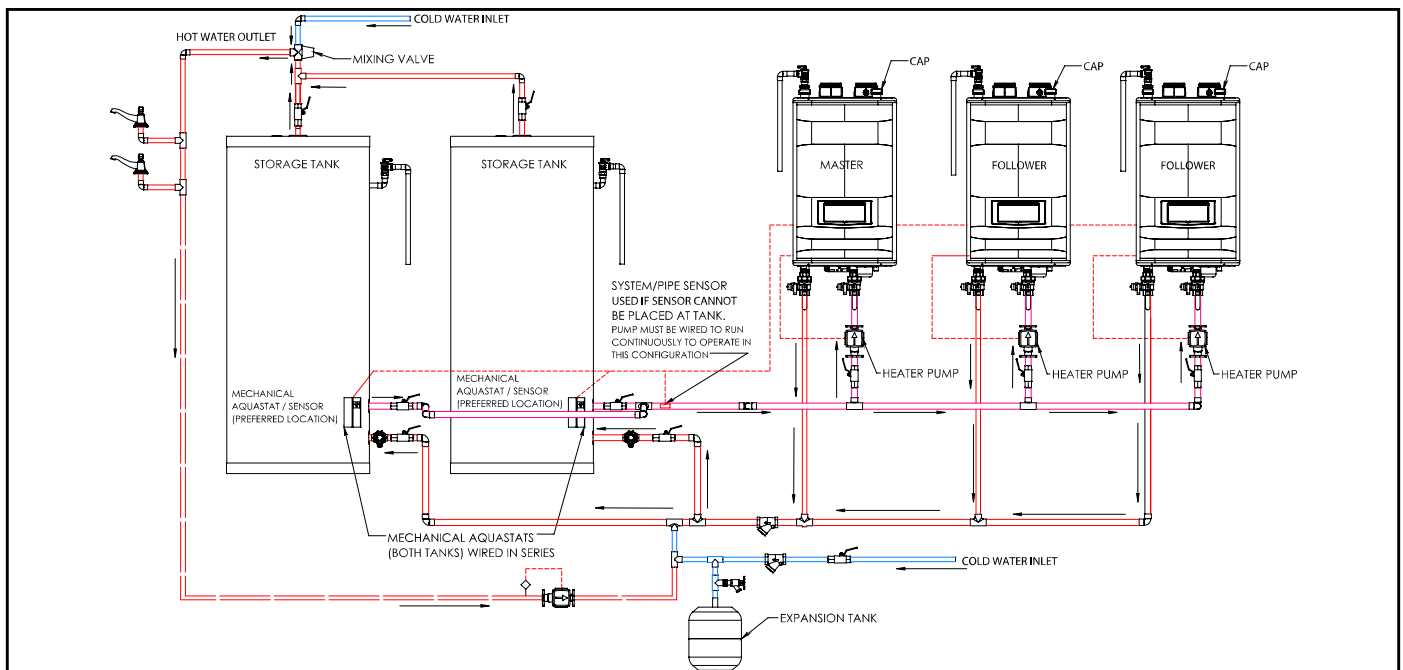


Figure 10 - Cascaded Water Heaters w/ Two Storage Tanks and Recirculation

NOTES:

1. Minimum pipe size should match connection size. Upsize pipe accordingly if greater flow is required.
2. A thermal expansion tank suitable for potable water must be sized and installed within this piping system between the backflow preventer and the cold water inlet.
3. All circulators should have an integral flow check.
4. Drains and shutoff valve between water heater and piping will assist in purging air from system.
5. These drawings are meant to demonstrate system piping only. The installer is responsible for all equipment and detailing required by local codes.
6. In Massachusetts, you must install a vacuum relief valve per 248 CMR.
7. Mixing valve application is optional, but recommended to help prevent scalding.
8. Always shut off power to the water heater or isolate the heater from the system if ANY plumbing work is to be done. Running the water heater without water will result in dry-firing.
9. The setpoint of the water heater needs to be at least 20°F higher than the setpoint of the Aquastat / Tank Sensor / System Pipe Sensor.

NOTE: The preferred installation requires that an Aquastat or Tank Sensor be installed in a sensor well provided on the storage tank. If a sensor well is not available, a System Pipe Sensor may be installed on the return piping near the storage tank. However, when using a System Pipe Sensor, the pump **MUST** be wired to run continuously. In this configuration, this pump **CANNOT** BE POWERED BY THE WATER HEATER.

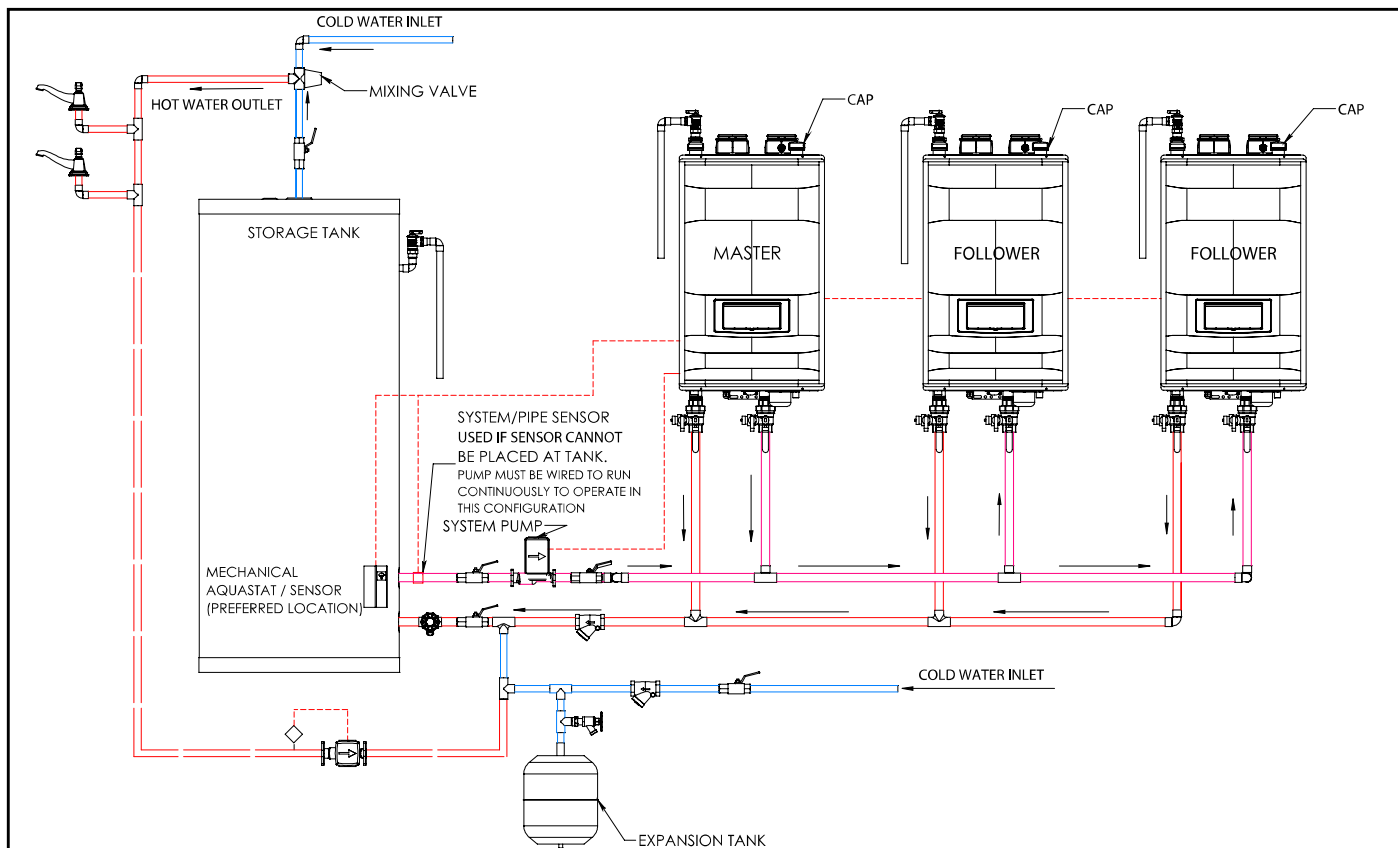


Figure 11 - Cascaded Water Heaters w/ One Storage Tank, System Pump, and Recirculation

NOTES:

1. Minimum pipe size should match connection size. Upsize pipe accordingly if greater flow is required.
2. A thermal expansion tank suitable for potable water must be sized and installed within this piping system between the backflow preventer and the cold water inlet.
3. All circulators should have an integral flow check.
4. Drains and shutoff valve between water heater and piping will assist in purging air from system.
5. These drawings are meant to demonstrate system piping only. The installer is responsible for all equipment and detailing required by local codes.
6. In Massachusetts, you must install a vacuum relief valve per 248 CMR.
7. Mixing valve application is optional, but recommended to help prevent scalding.
8. Always shut off power to the water heater or isolate the heater from the system if ANY plumbing work is to be done. Running the water heater without water will result in dry-firing.
9. The setpoint of the water heater needs to be at least 20°F higher than the setpoint of the Aquastat / Tank Sensor / System Pipe Sensor.

NOTE: The preferred installation requires that an Aquastat or Tank Sensor be installed in a sensor well provided on the storage tank.

If a sensor well is not available, a System Pipe Sensor may be installed on the return piping near the storage tank. However, when using a System Pipe Sensor, the pump **MUST** be wired to run continuously. In this configuration, this pump **CANNOT** BE POWERED BY THE WATER HEATER.