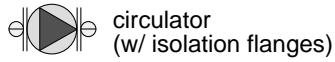


M. BOILER PIPING DETAILS

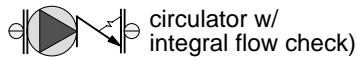
Piping Symbol Legend



circulator (w/ isolation flanges)



pressure reducing valve



circulator w/ integral flow check



diff. pressure bypass



gate valve



globe valve



anti-scald rated mixing valve



ball valve



pressure gauge



swing-check valve



4-way motorized mixing valve



flow-check valve



3-way motorized mixing valve



spring-loaded check valve



hose bib / boiler drain



pressure relief valve



thermostatic radiator valve TRV (straight)



backflow preventer



thermostatic radiator valve TRV (angle)



float-type air vent



circuit setter



union



manual 3-way valve



heat exchanger



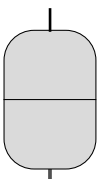
zone valve



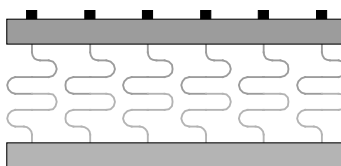
vacuum breaker



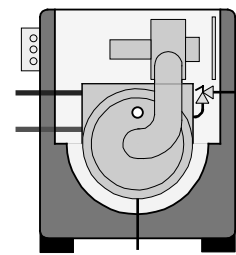
air separator



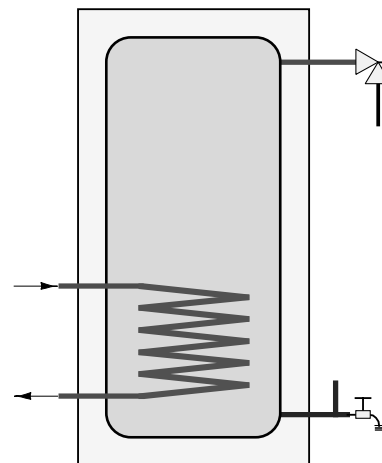
diaphragm-type expansion tank



radiant manifold



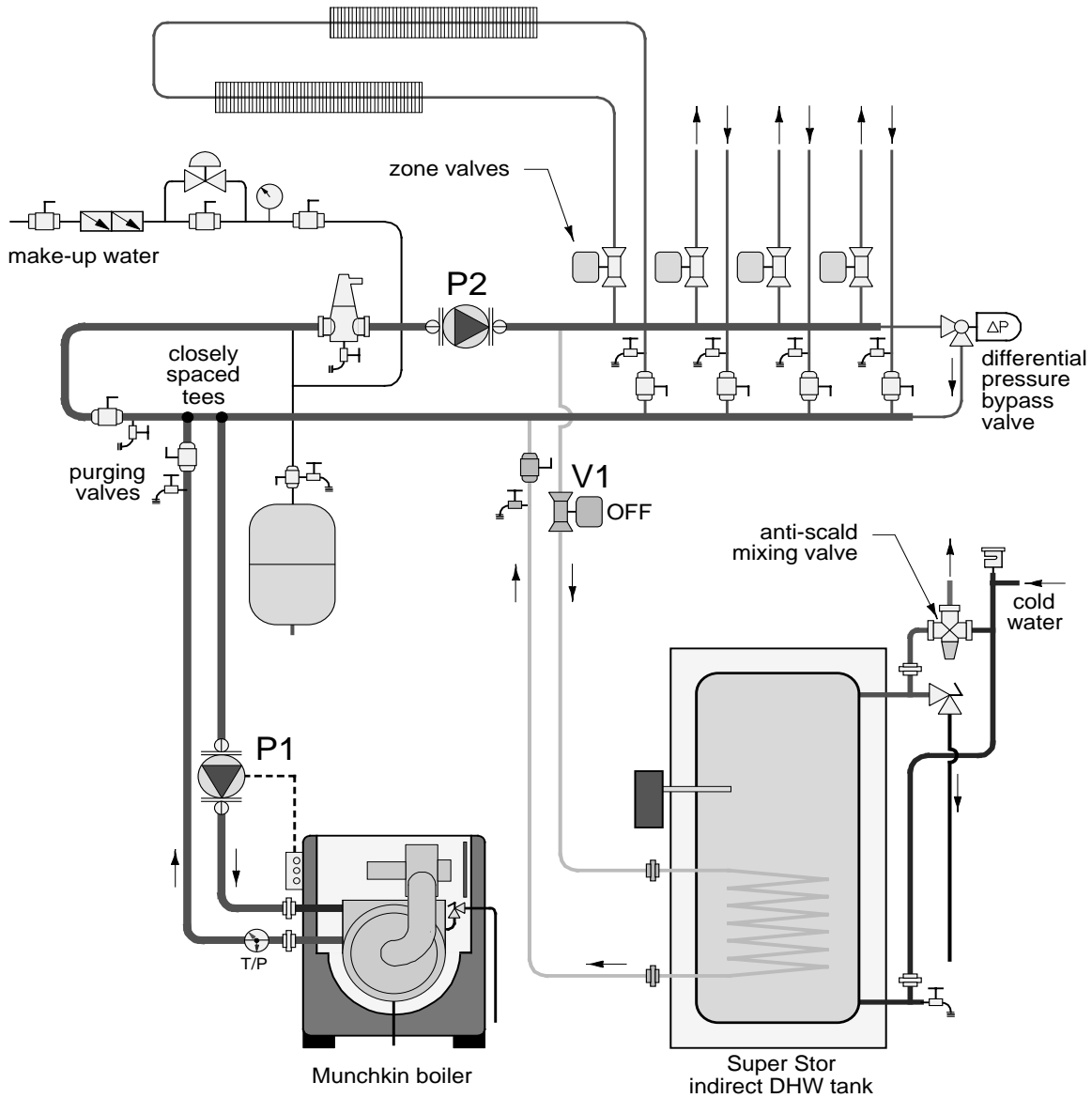
Munchkin heater



Super Stor indirect DHW tank

Standard Munchkin boiler
Preferred piping (zoning with valves)
Space heating mode

Drawing 2A



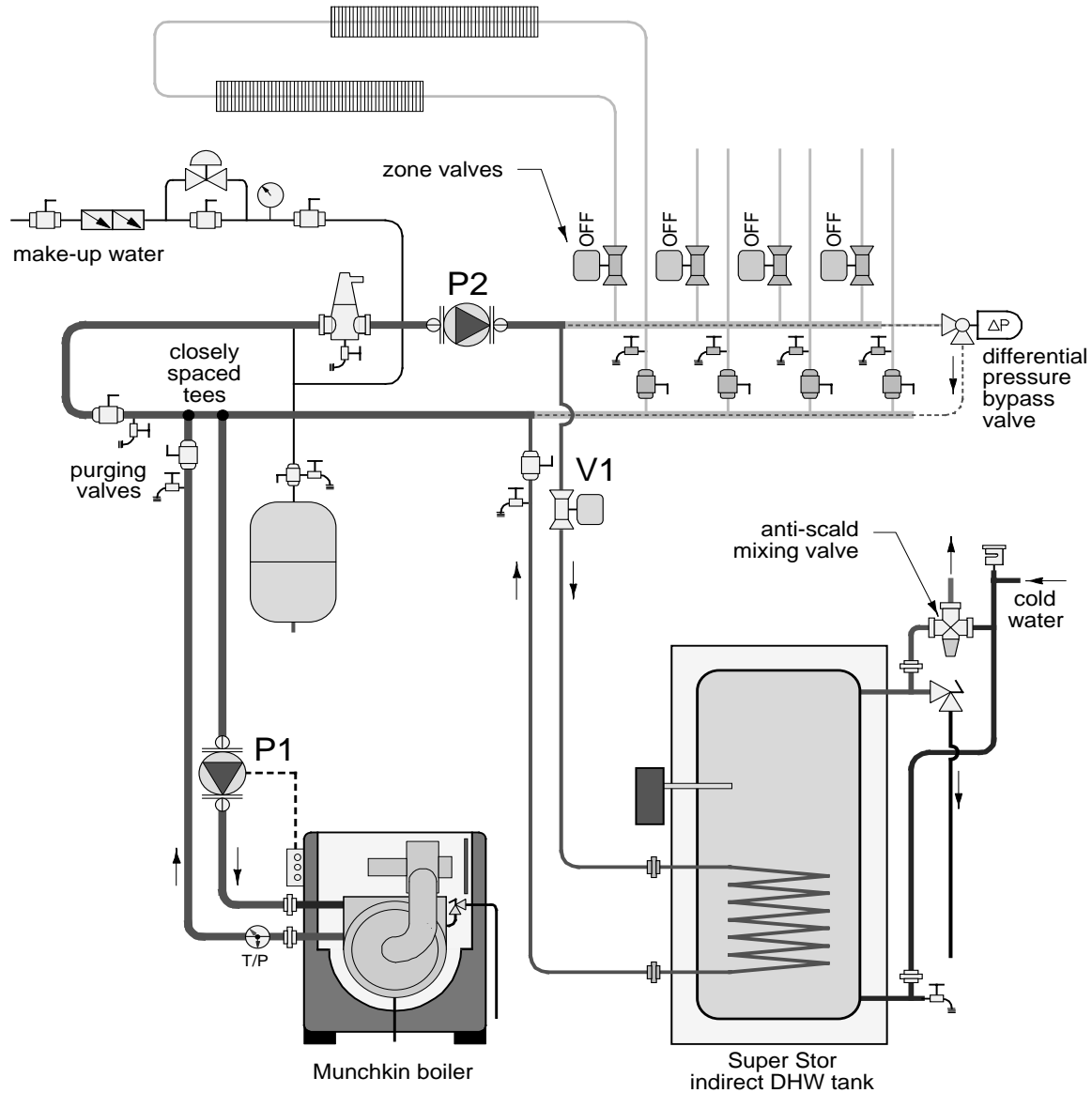
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. Adjust differential pressure bypass valve to eliminate any flow velocity noise when zone with highest pressure drop operates by itself.
3. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
4. The minimum pipe size for connecting a Munchkin boiler is 1.25 inches and 2 inches for the 399M.
5. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
6. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
7. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
8. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
9. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

Standard Munchkin boiler
Preferred piping (zoning with valves)
Domestic water heating mode

Drawing 2B



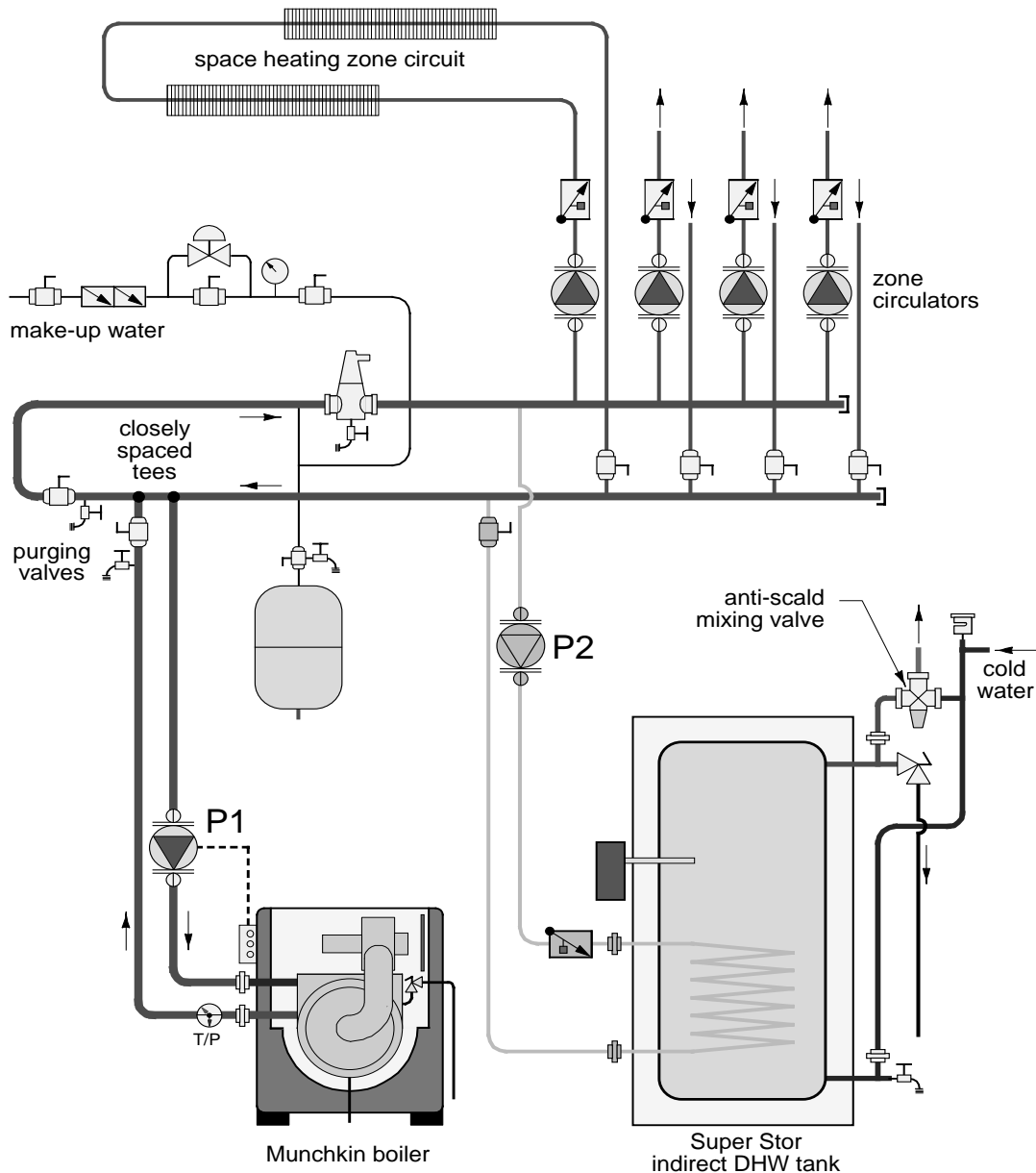
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. Adjust differential pressure bypass valve to eliminate any flow velocity noise when zone with highest pressure drop operates by itself.
3. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
4. The minimum pipe size for connecting a Munchkin boiler is 1.25 inches and 2 inches for the 399M.
5. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
6. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
7. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
8. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
9. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

Standard Munchkin boiler
Preferred piping (zoning with circulators)
Space heating mode

Drawing 2C



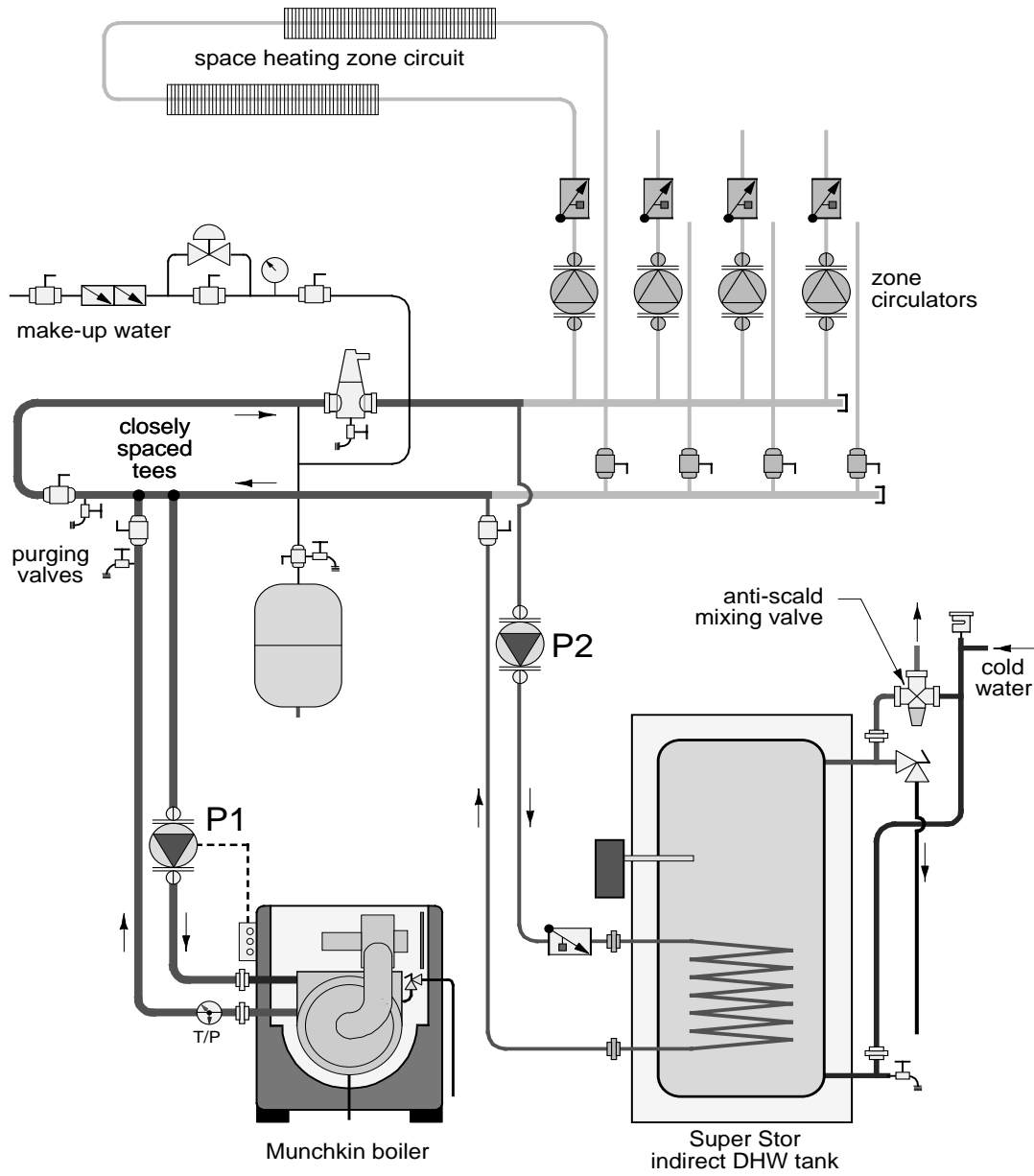
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

Standard Munchkin boiler
Preferred piping (zoning with circulators)
Domestic water heating mode

Drawing 2D



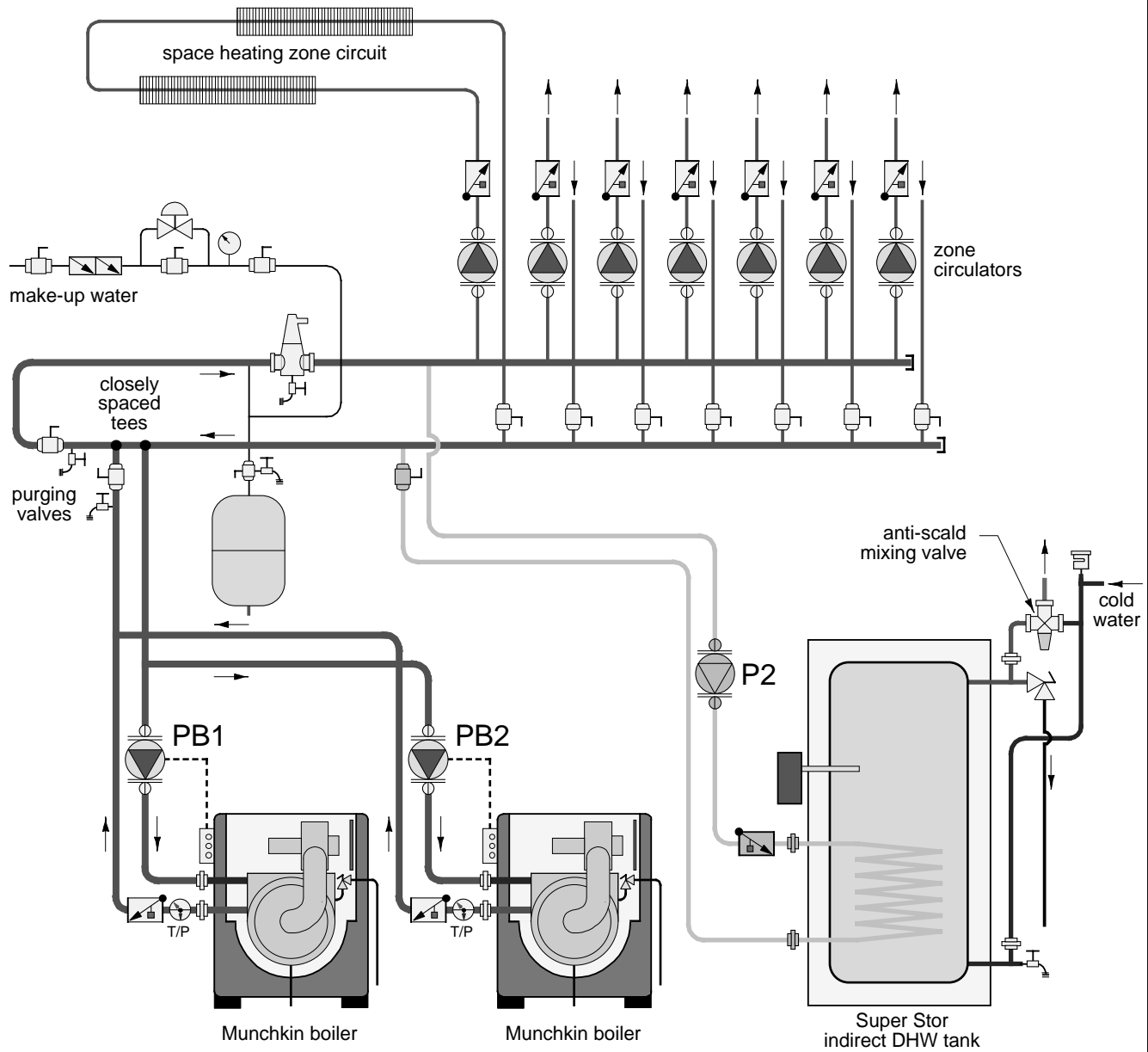
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

Standard Munchkin boiler
Preferred piping
(multiple boilers / zoning with circulators)
Space heating mode

Drawing 2E



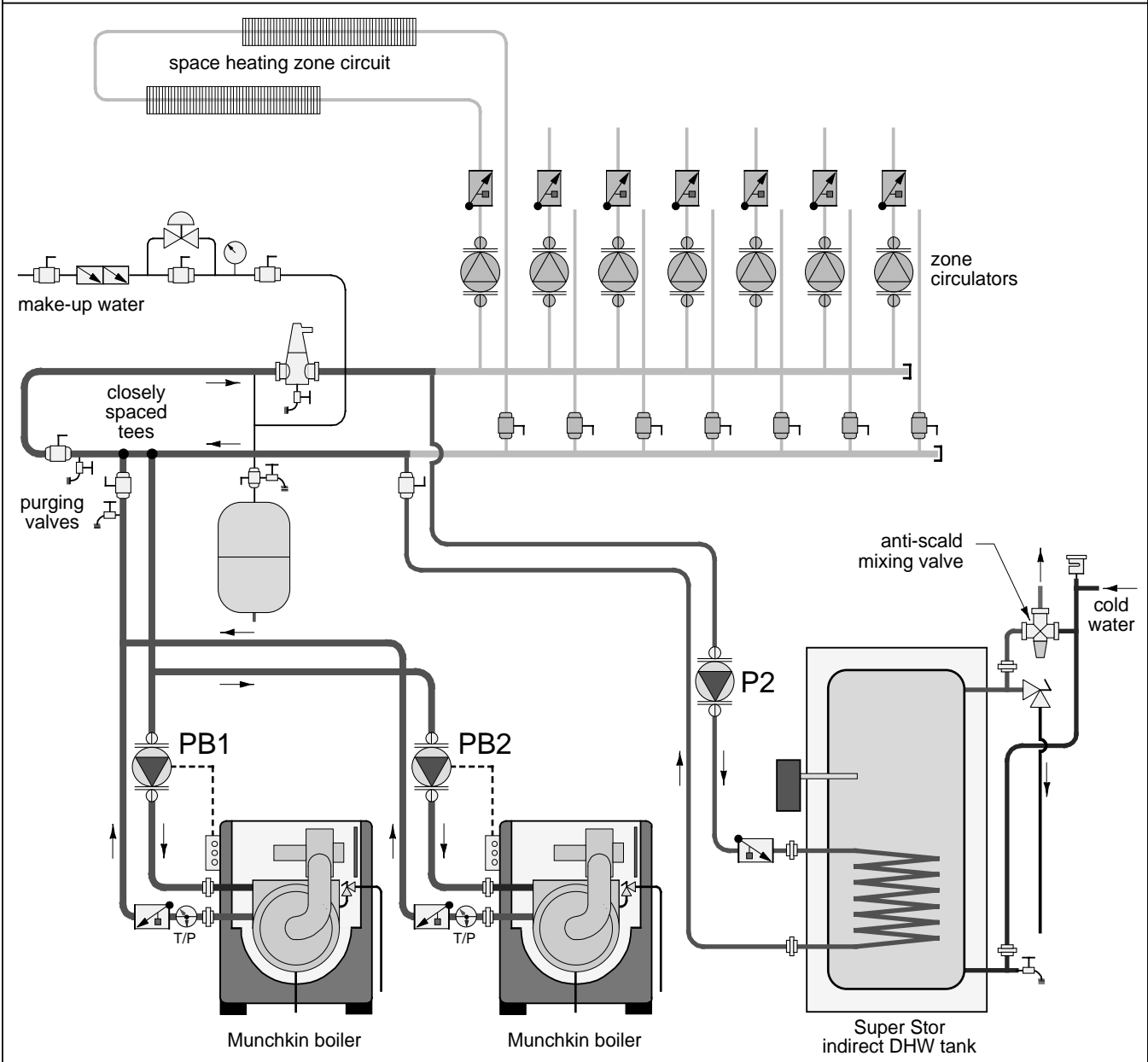
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

Standard Munchkin boiler
Preferred piping
(multiple boilers / zoning with circulators)
Domestic water heating mode

Drawing 2F



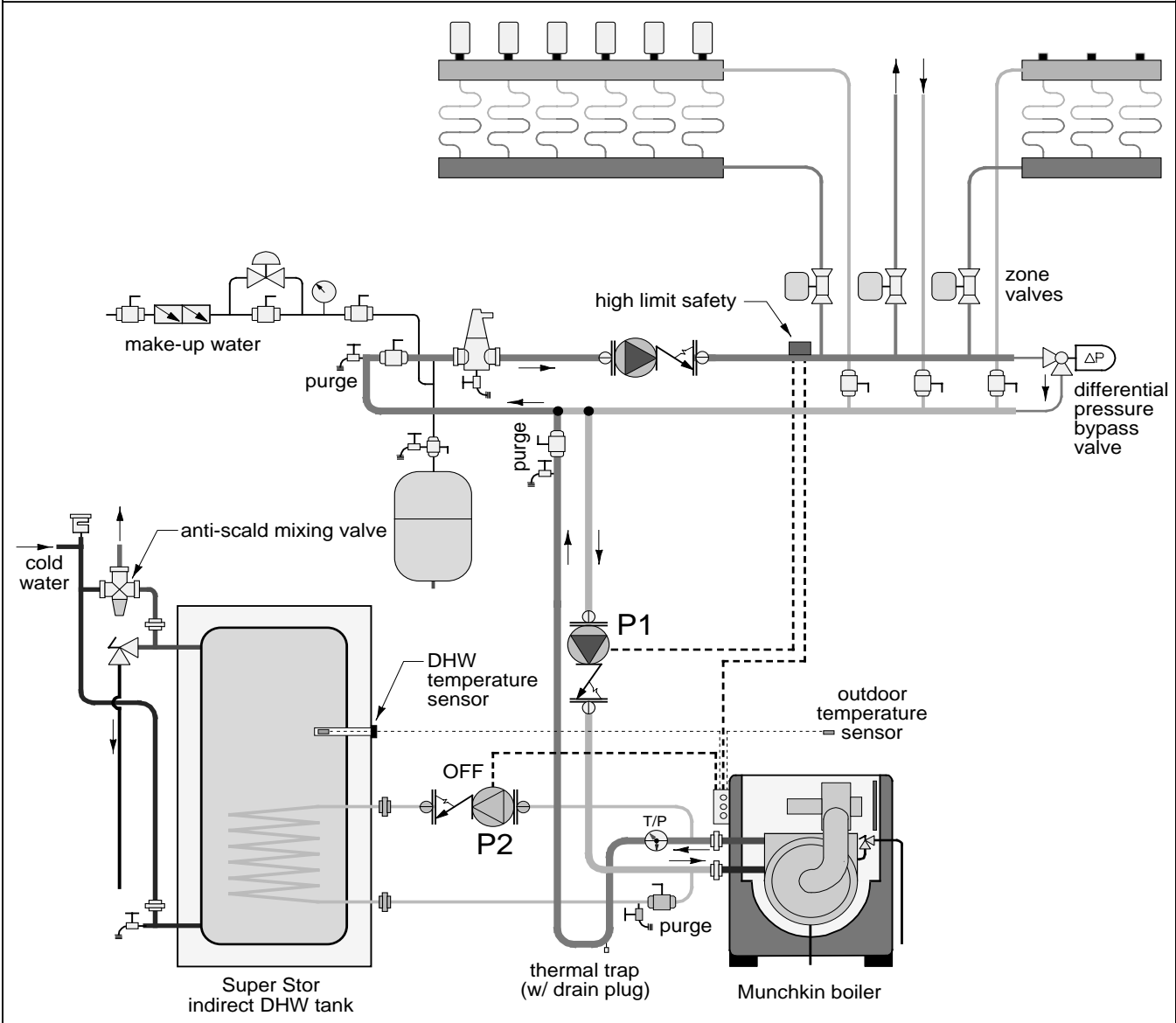
NOTES:

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2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges. The alternative is standard flanges with full port ball valves.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

NOTE: For Vision piping applications, refer to the Vision Installation Piping Diagrams.

D. BOILER PIPING DETAILS WITH THE VISION I SYSTEM

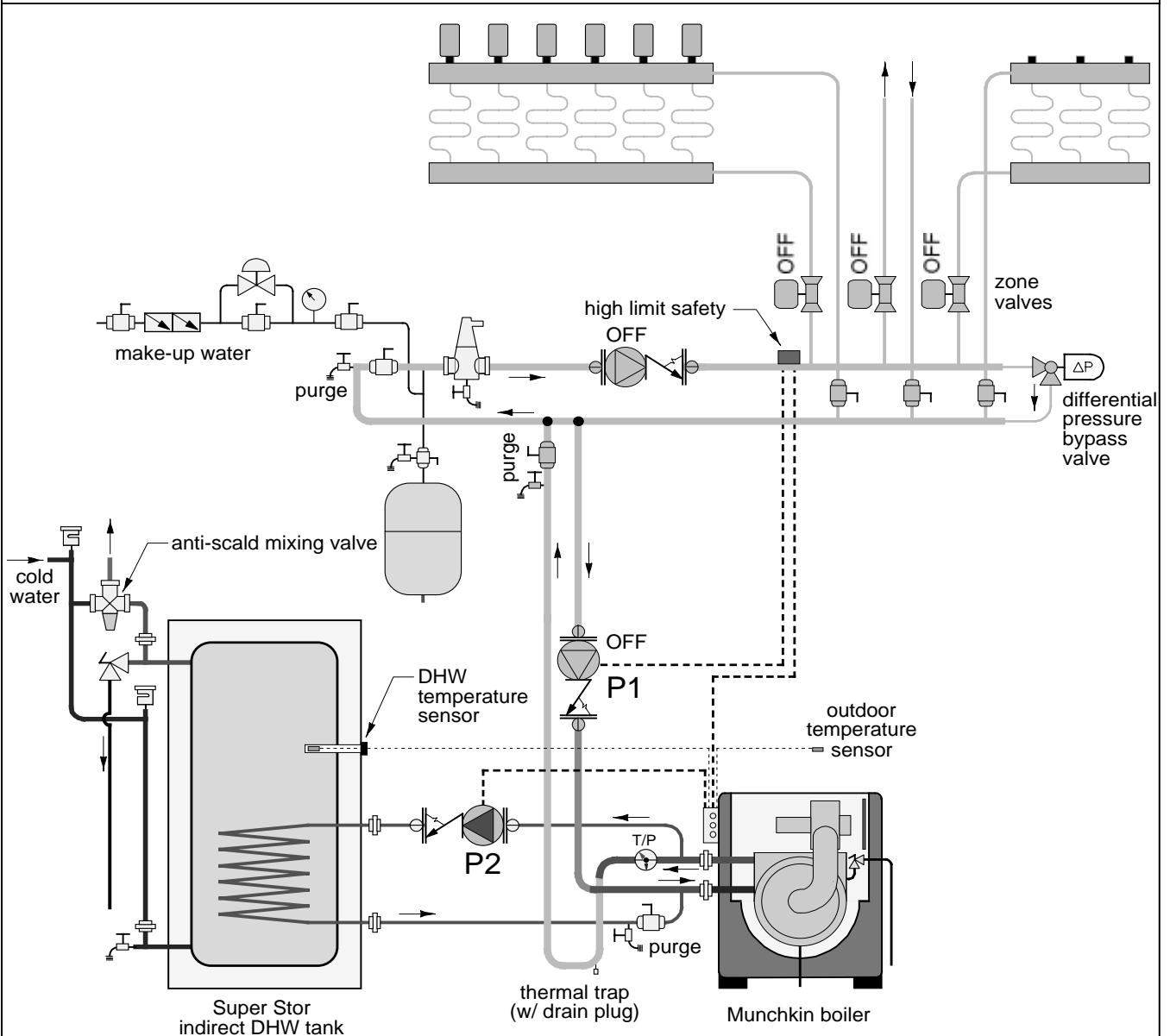
Munchkin VISION 1 system (zoning with valves) Space heating mode Drawing 3A



- NOTES:**
1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
 2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
 3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
 4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
 5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
 6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
 7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
 8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
 9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
 10. Adjust differential pressure bypass valve to eliminate any flow velocity noise when zone with highest pressure drop operates by itself.

Munchkin VISION 1 system
(zoning with valves)
Domestic water heating mode

Drawing 3B

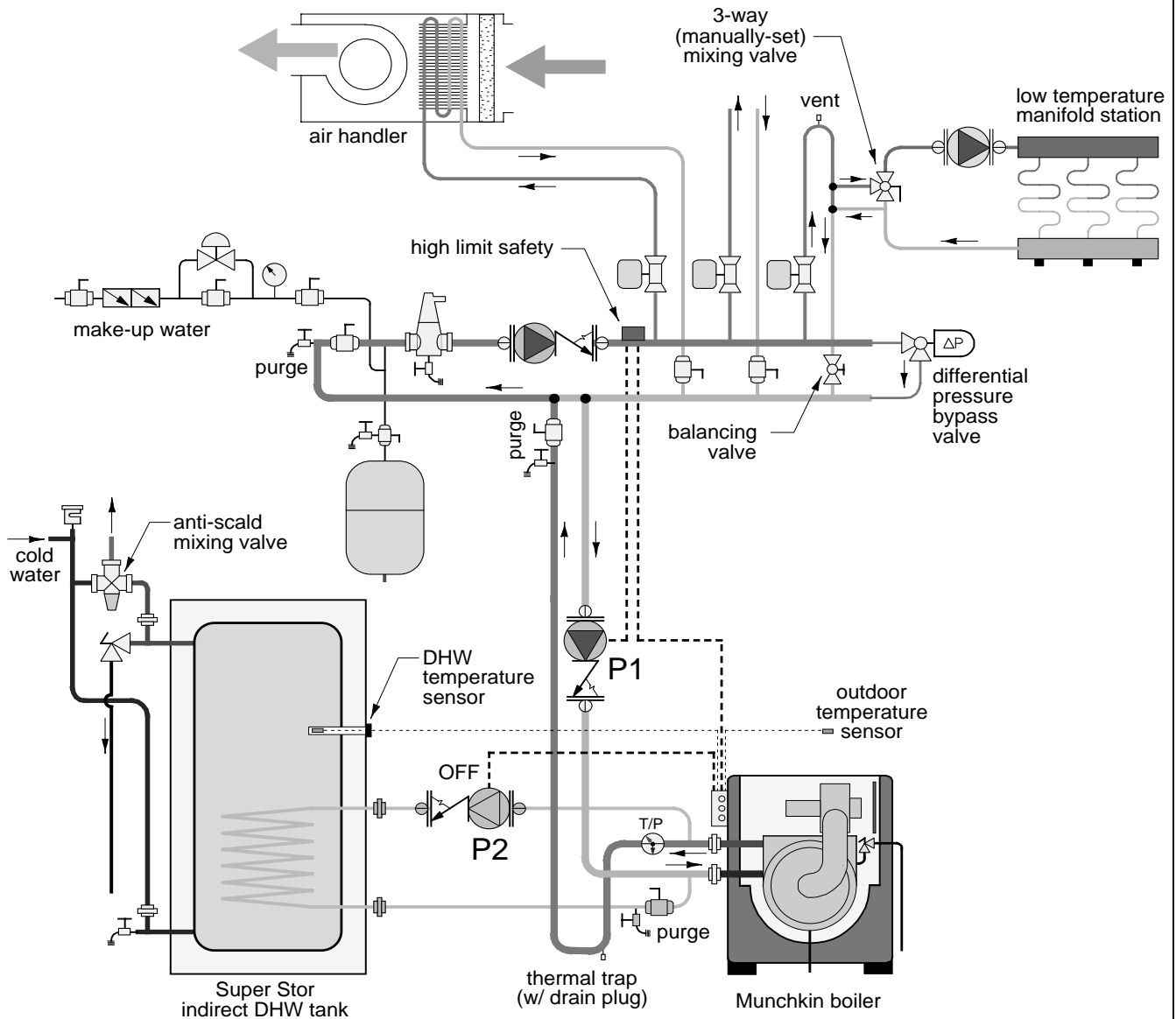


NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. Adjust differential pressure bypass valve to eliminate any flow velocity noise when zone with highest pressure drop operates by itself.

Munchkin VISION 1 system
(zoning with valves)
Space heating mode (w/ submixing)

Drawing 3C

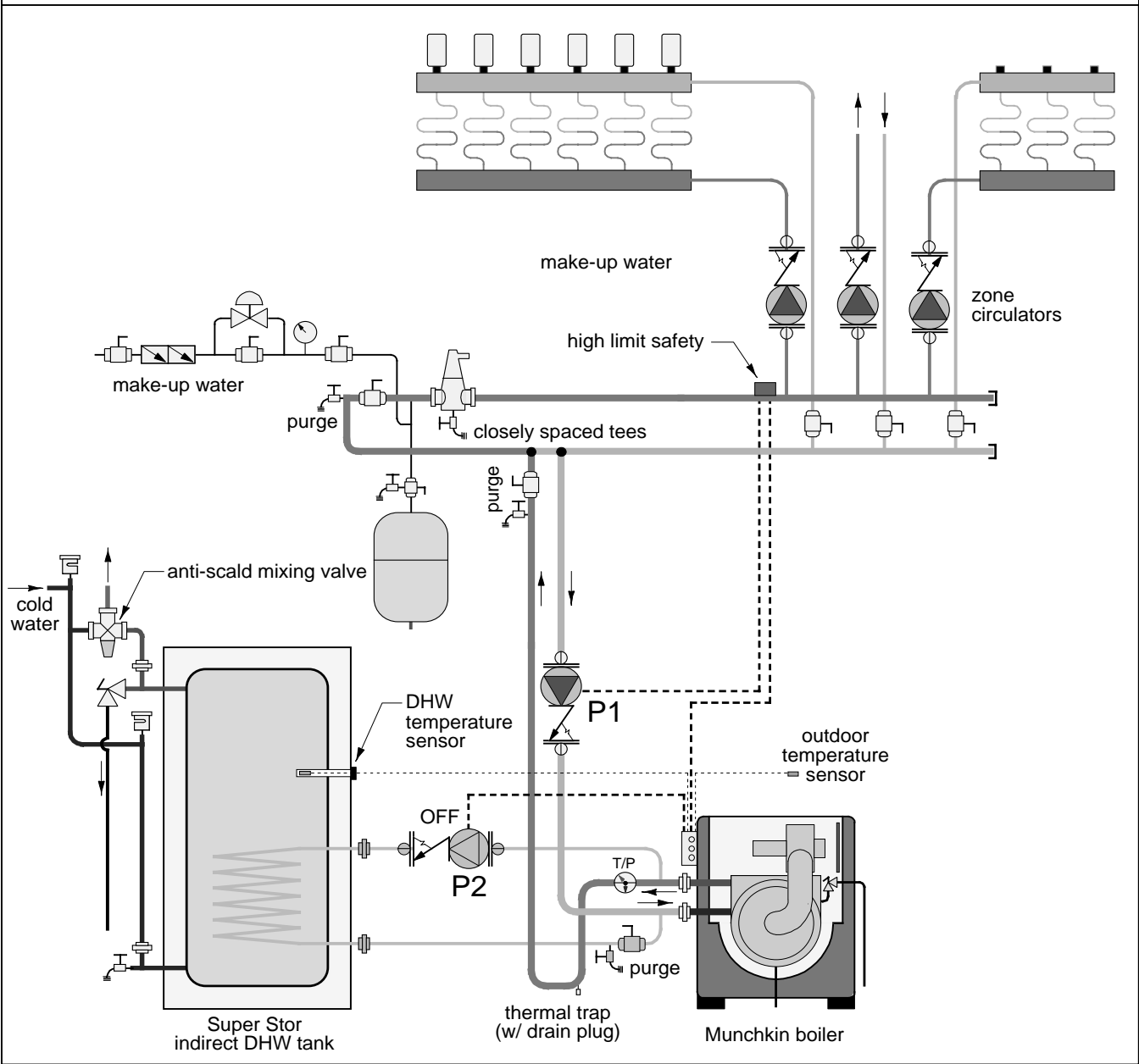


NOTES:

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2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. Adjust differential pressure bypass valve to eliminate any flow velocity noise when zone with highest pressure drop operates by itself.
11. Adjust 3-way manually-set mixing valve to yield proper supply temperature to lower temperature load.

Munchkin VISION 1 system
(zoning with circulators)
Space heating mode

Drawing 4A

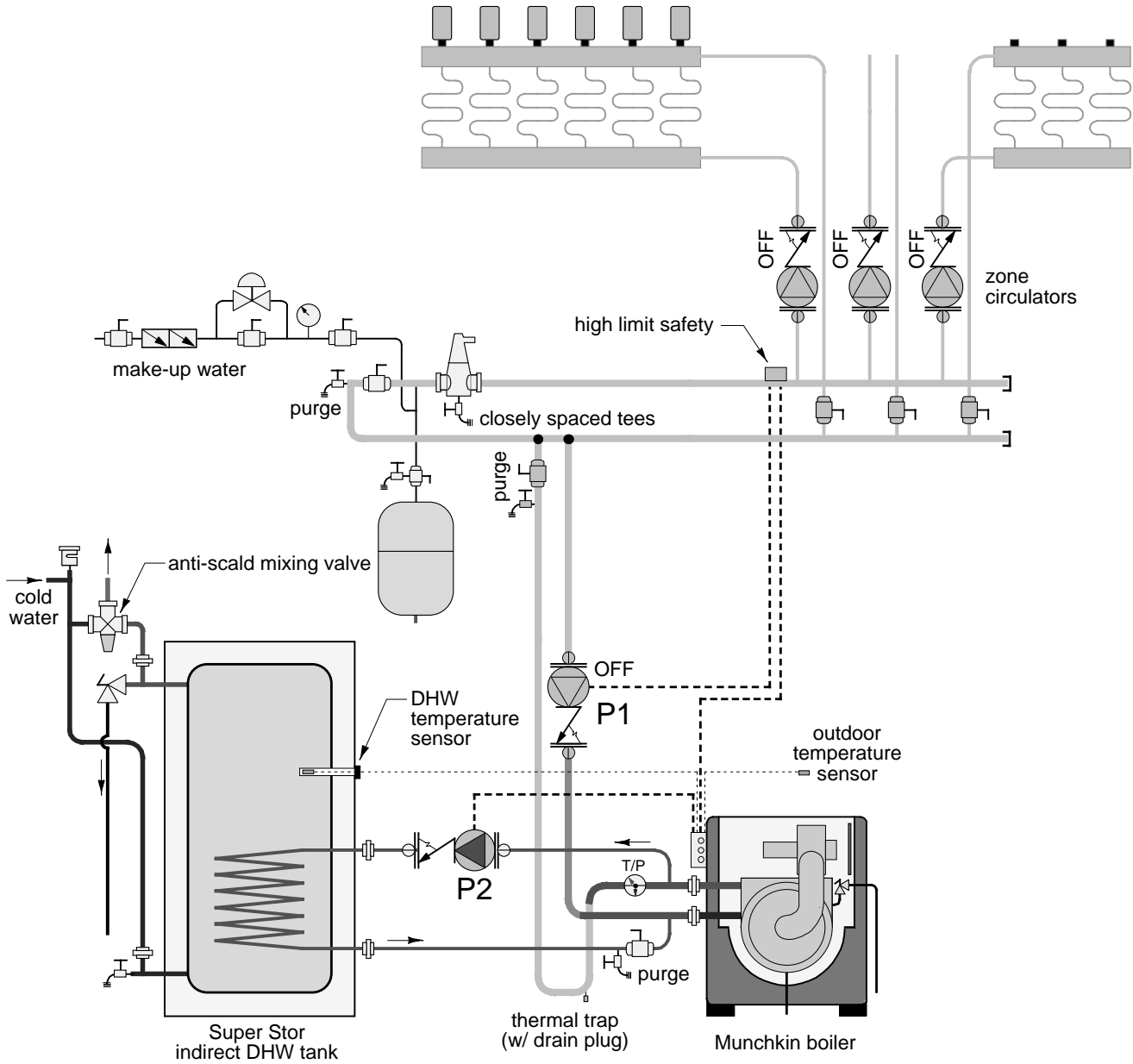


NOTES:

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2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
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5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

Munchkin VISION 1 system
(zoning with circulators)
Domestic water heating mode

Drawing 4B

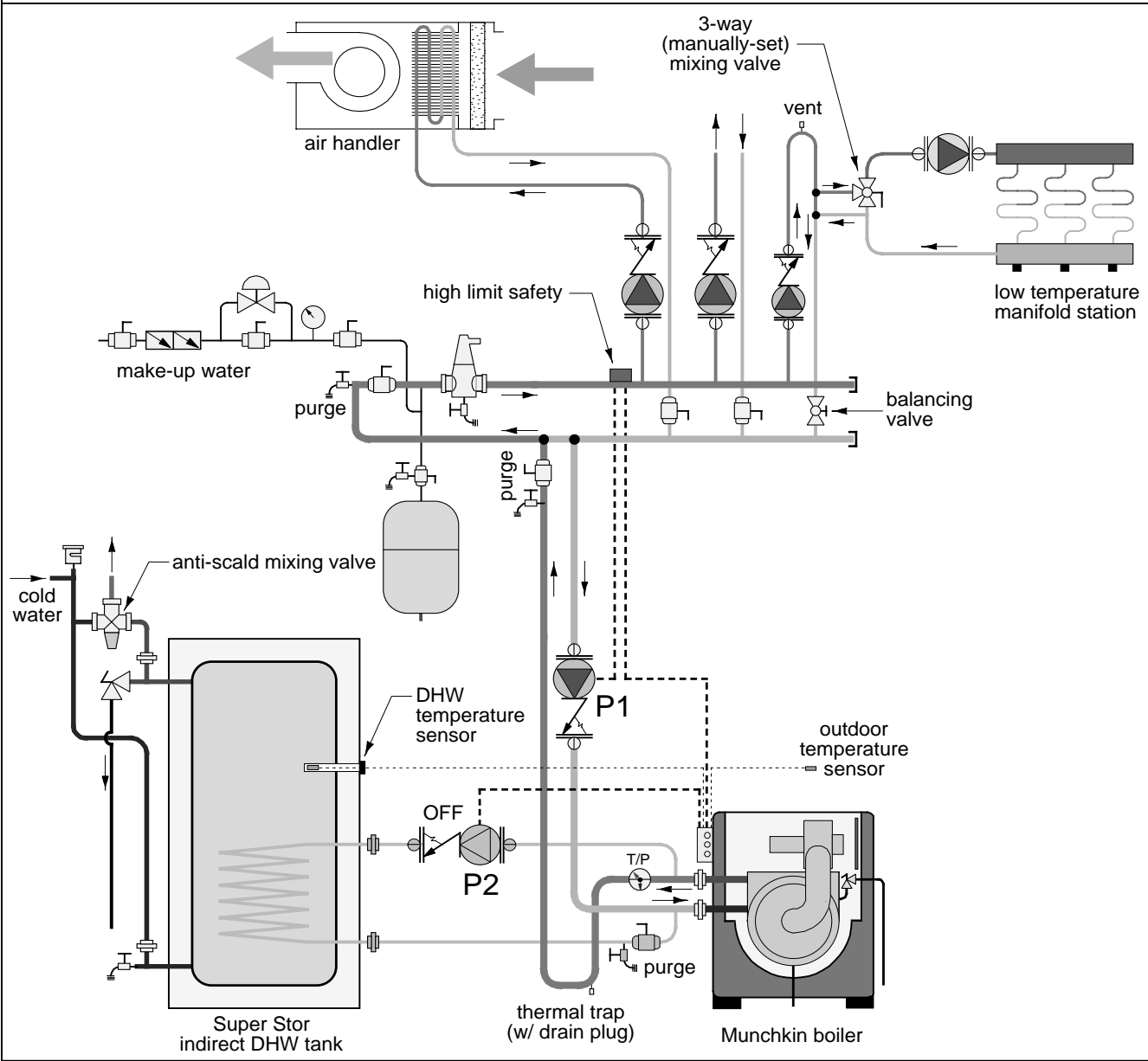


NOTES:

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2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.

Munchkin VISION 1 system
(zoning with circulators)
Space heating mode (w/ submixing)

Drawing 4C



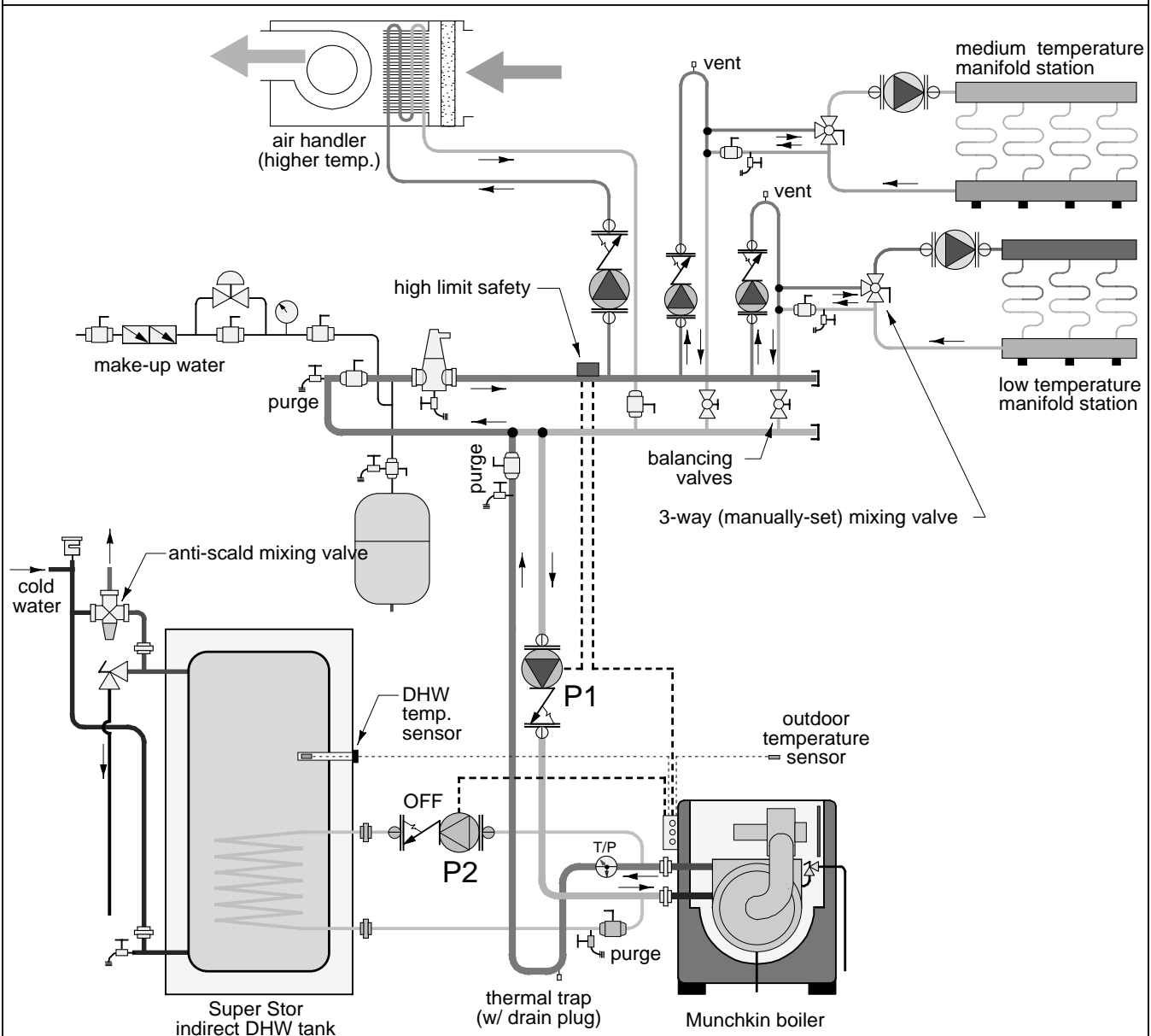
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. Adjust 3-way manually-set mixing valve to yield proper supply temperature to lower temperature load.

Munchkin VISION 1 system
(zoning with circulators)

Drawing 4E

Space heating mode (3 fully reset supply temperatures)

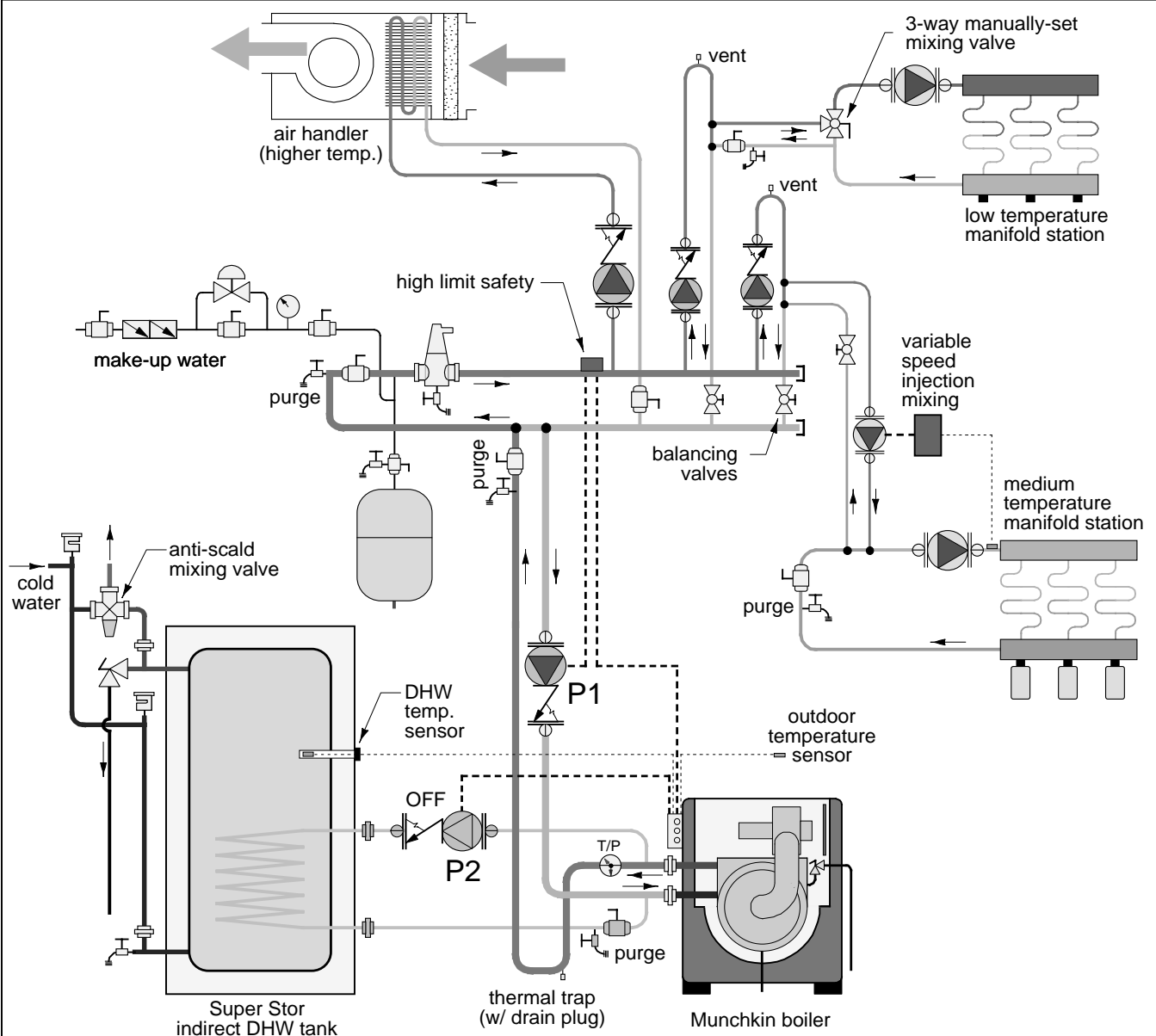


NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Do not use valve actuators on manifolds supplied by manually-set 3-way mixing valves.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. Adjust 3-way manually-set mixing valve to yield proper supply temperature to lower temperature load.

Munchkin VISION 1 system
(zoning with circulators)
Space heating mode (3 different supply temperatures)

Drawing 4F



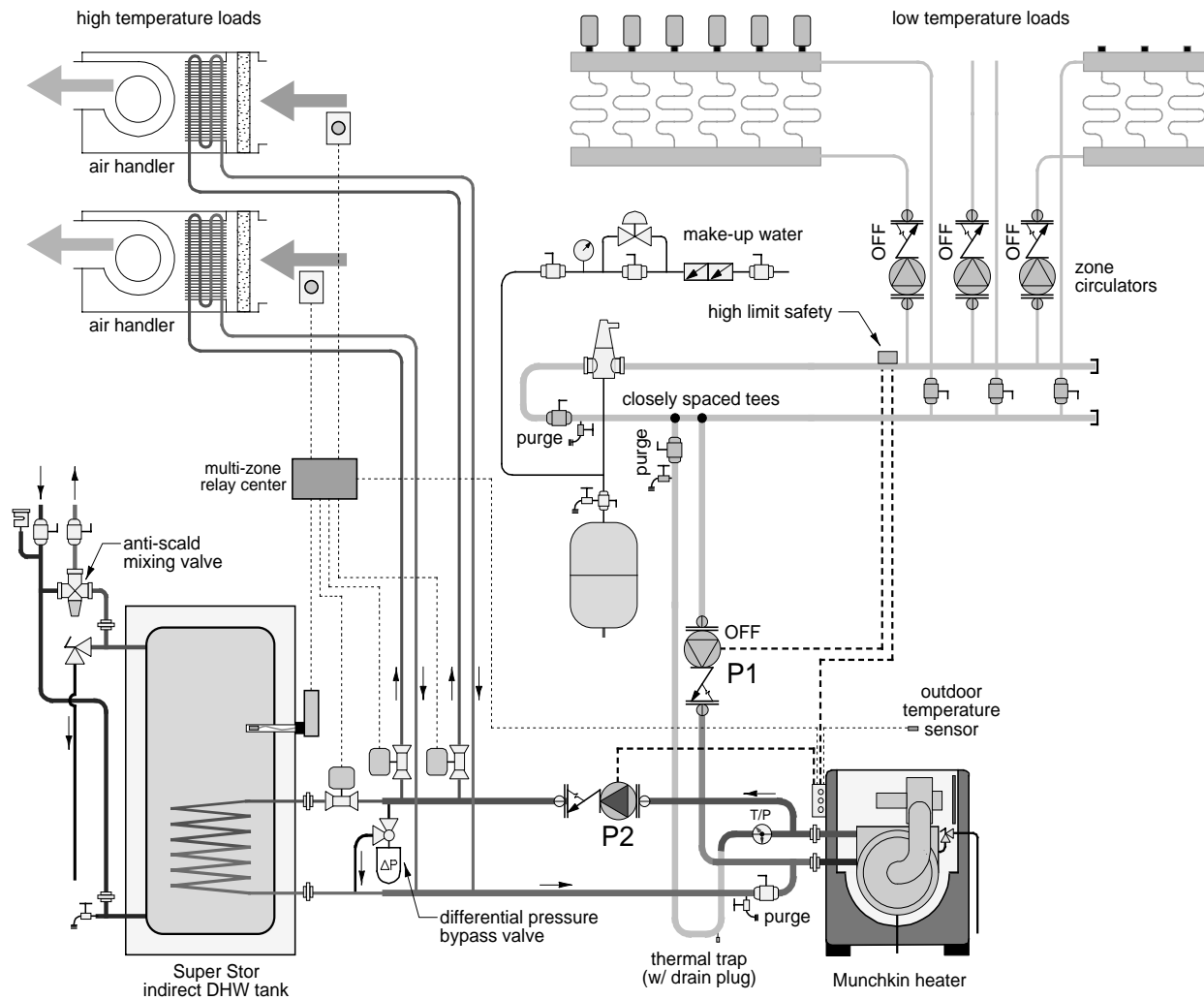
NOTES:

1. This drawing is meant to show system piping concept only. Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
3. A minimum of 6 pipe diameters of straight pipe shall be installed upstream and downstream of all closely spaced tees.
4. The minimum pipe size for connecting a Super Stor water heater is 1 inch.
5. The minimum pipe size for connecting a Munchkin boiler shall be 1.25 inches and 2 inches for the 399M.
6. All pumps are shown with isolation flanges and integral flow check valves. The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Follow all instructions for installation of injection mixing system.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. Adjust 3-way manually-set mixing valve to yield proper supply temperature to lower temperature load.

Munchkin VISION 1 system

Drawing 4G

Multiple high temperature priority loads controlled with zone valves

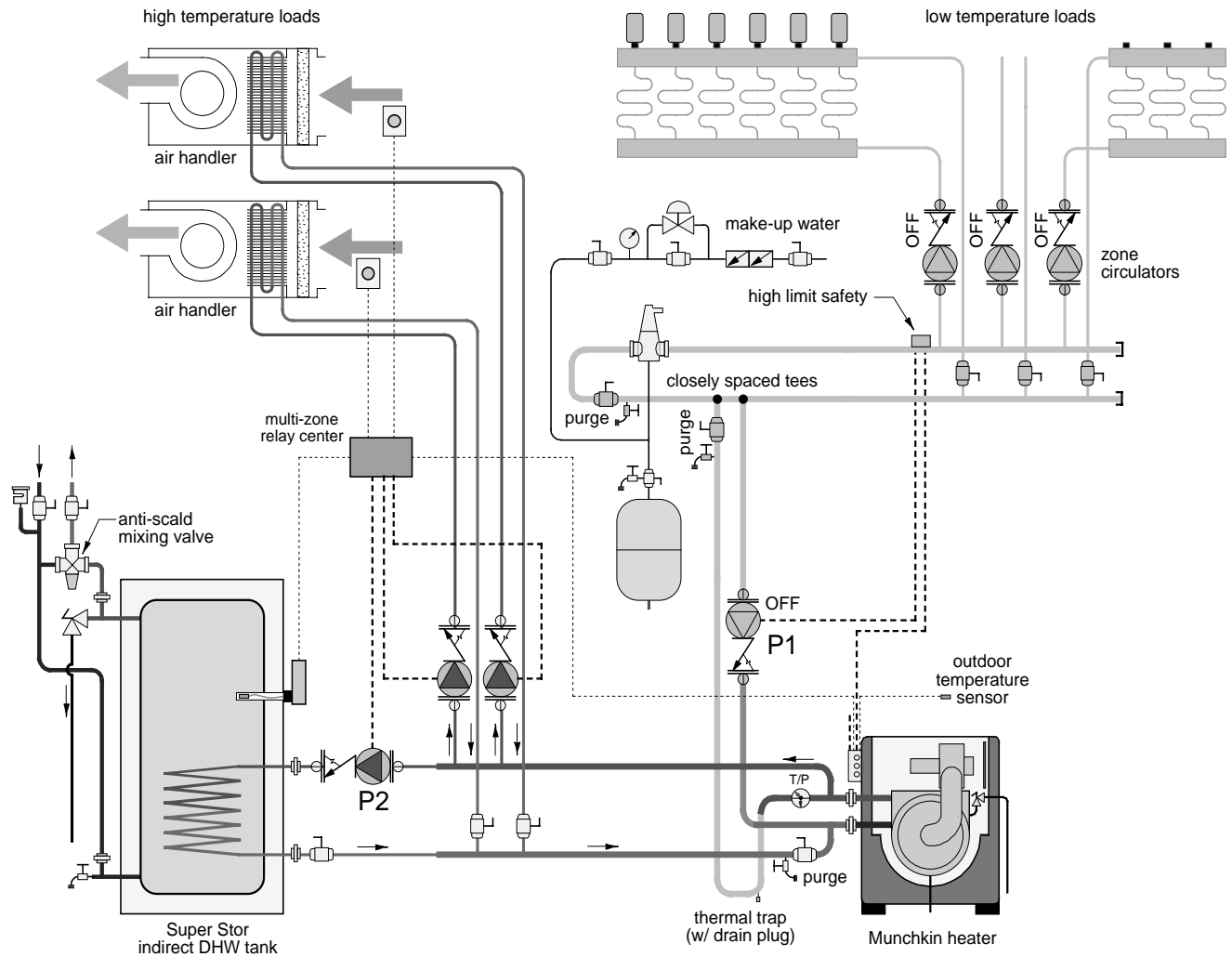


NOTES:

1. This drawing is meant to show system piping concept only.
Installer is responsible for all equipment & detailing required by local codes.
2. All closely spaced tees shall be within 4 pipe diameter center to center spacing.
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6. All pumps are shown with isolation flanges and integral flow check valves.
The alternative is standard flanges with full port ball valves and a separate flow check valve.
7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. High temperature loads cannot operate simultaneously with low temperature loads.
11. Supply water temperature to high temperature loads is not reset based on outdoor temperature.
12. Domestic water heating is highest priority load, and controlled through priority zone of multi-zone relay center

Munchkin VISION 1 system
 Multiple high temperature priority loads
 controlled with zone circulators
 Multiple low temperature load controls with zone circulators

Drawing 4H



NOTES:

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7. The anti-scald mixing valve is recommended if the DHW temperature is set above the factory setting of 119°F.
8. Install a minimum of 12 diameters of straight pipe upstream of all circulators.
9. A purging valve may be used in lieu of the ball valve / hose bib combination shown.
10. High temperature loads cannot operate simultaneously with low temperature loads.
11. Supply water temperature to high temperature loads is not reset based on outdoor temperature.
12. Domestic water heating is highest priority load, and controlled through priority zone of multi-zone relay center