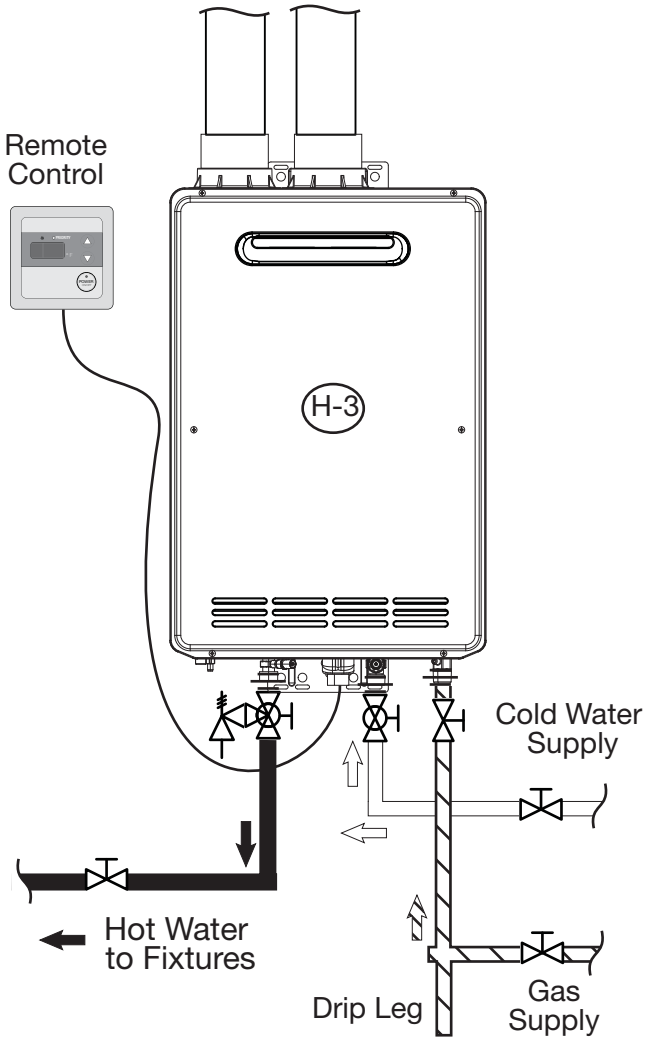
One Unit Tankless Installation



Written System Description

One Unit Tankless Installation:
One tankless water heaters shall be installed with a single remote control and vented to the outside per the manufacture instructions. The tankless unit shall be plumbed with a minimum gas and water line of an ¾" pipe or as code requires. Cold water will feed the tankless unit, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1 Indoor or Outdoor Tankless Water Heater

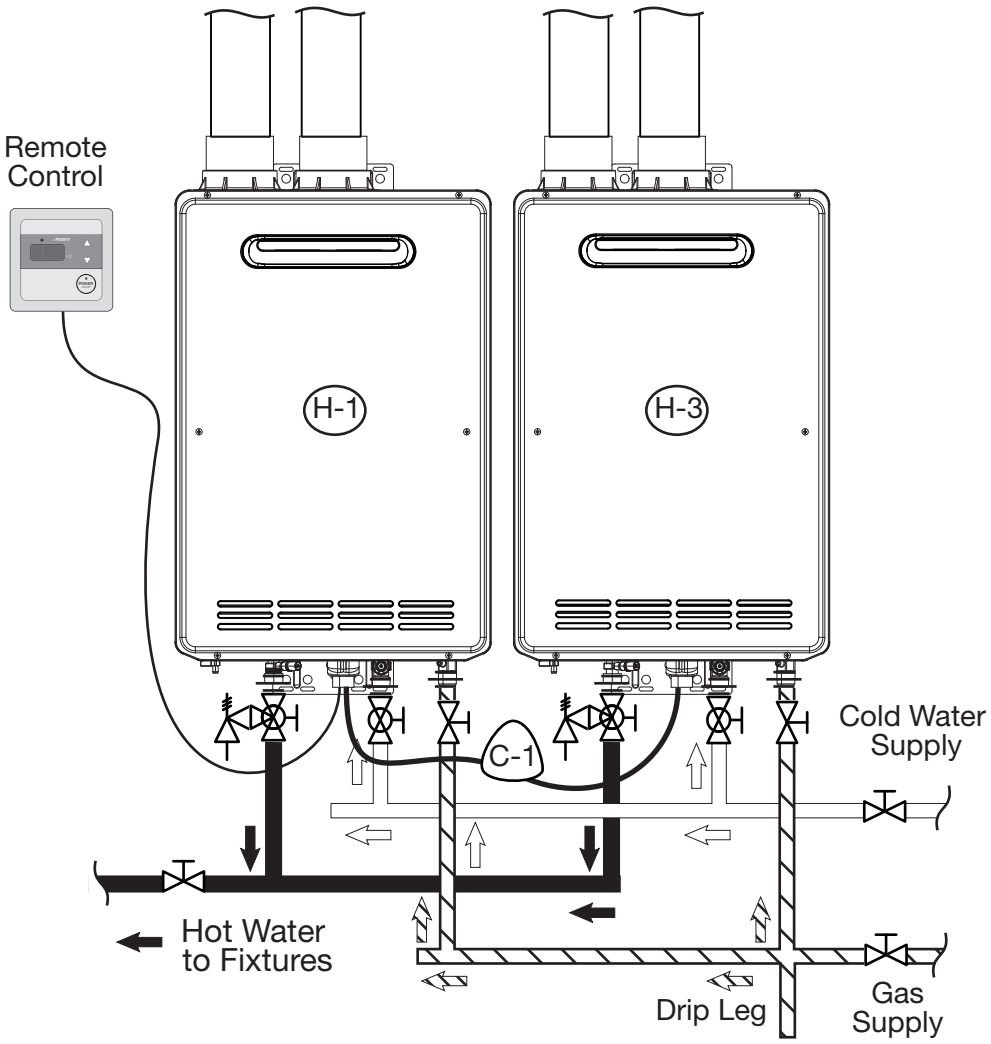
(1) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(1) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12101 5/12

- Cold Water Isolator Valve Assembly
- Hot Water Isolator Valve Assembly
- Pressure Relief Valve
- Circulation Pump
- Shut-off Valve
- Check Valve
- Union
- Gas Pipe
- Cold Water Pipe
- Hot Water Pipe
- Return Circulation Line

Two Unit Tankless Installation



Written System Description

Two Unit Tankless Installation:
Two tankless water heaters shall be installed, connected with a EZ-Link cable, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

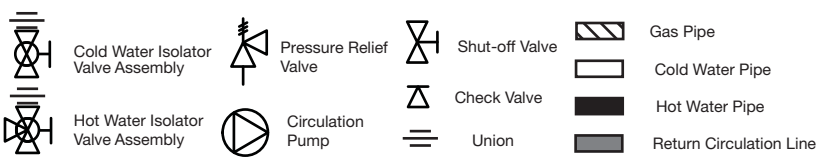
System Components

H-1-3 Indoor or Outdoor Tankless Water Heater
C-1 EZ-Link Cable (RTG20040)

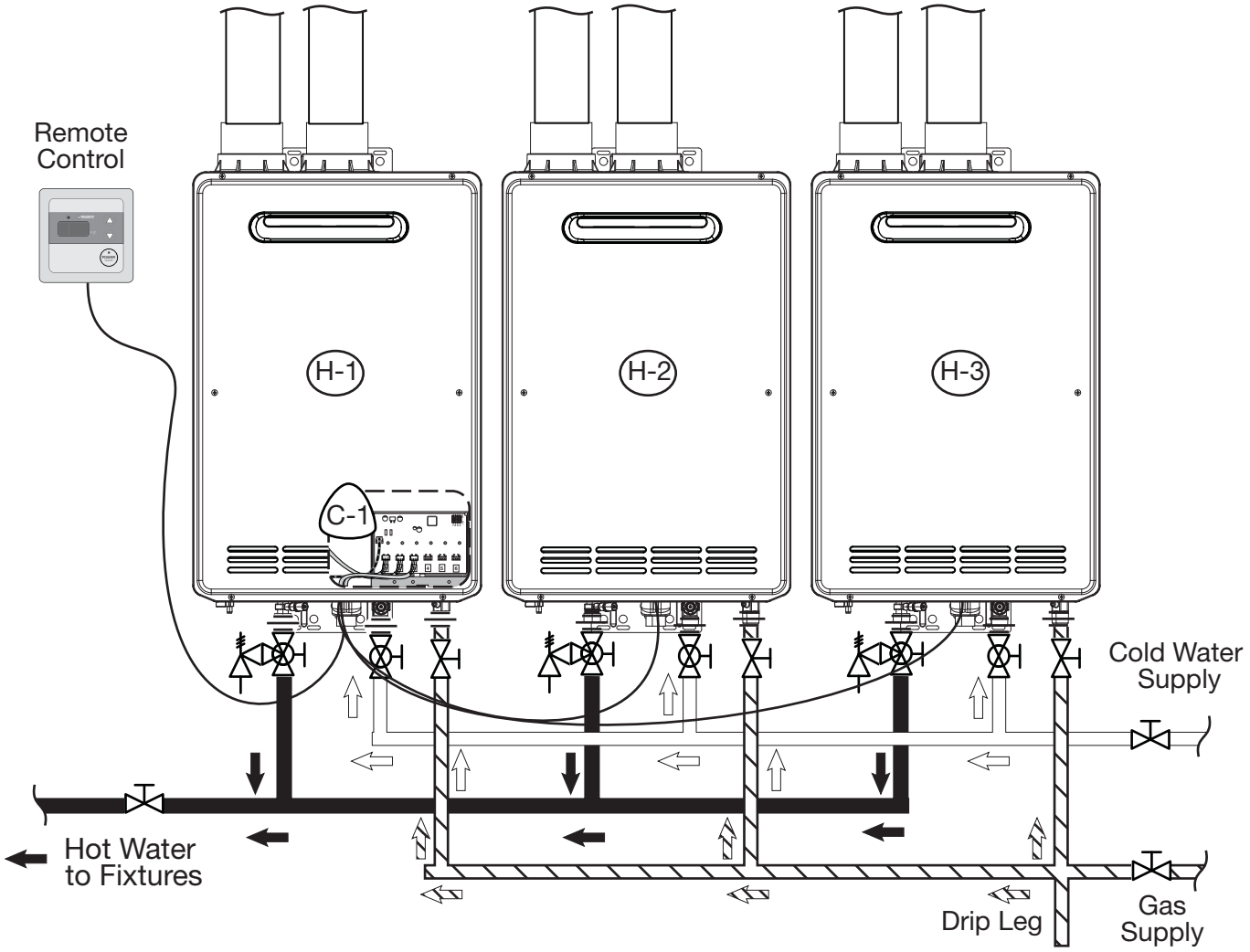
(2) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(2) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12102 5/12



Three Unit Tankless Installation



Written System Description

Three Unit Tankless Installation:
Three tankless water heaters shall be installed with MIC-6 Manifold Controller, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1 ¼" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-3 Indoor or Outdoor Tankless Water Heater
C-1 MIC-6 Manifold Controller (RTG20213A)

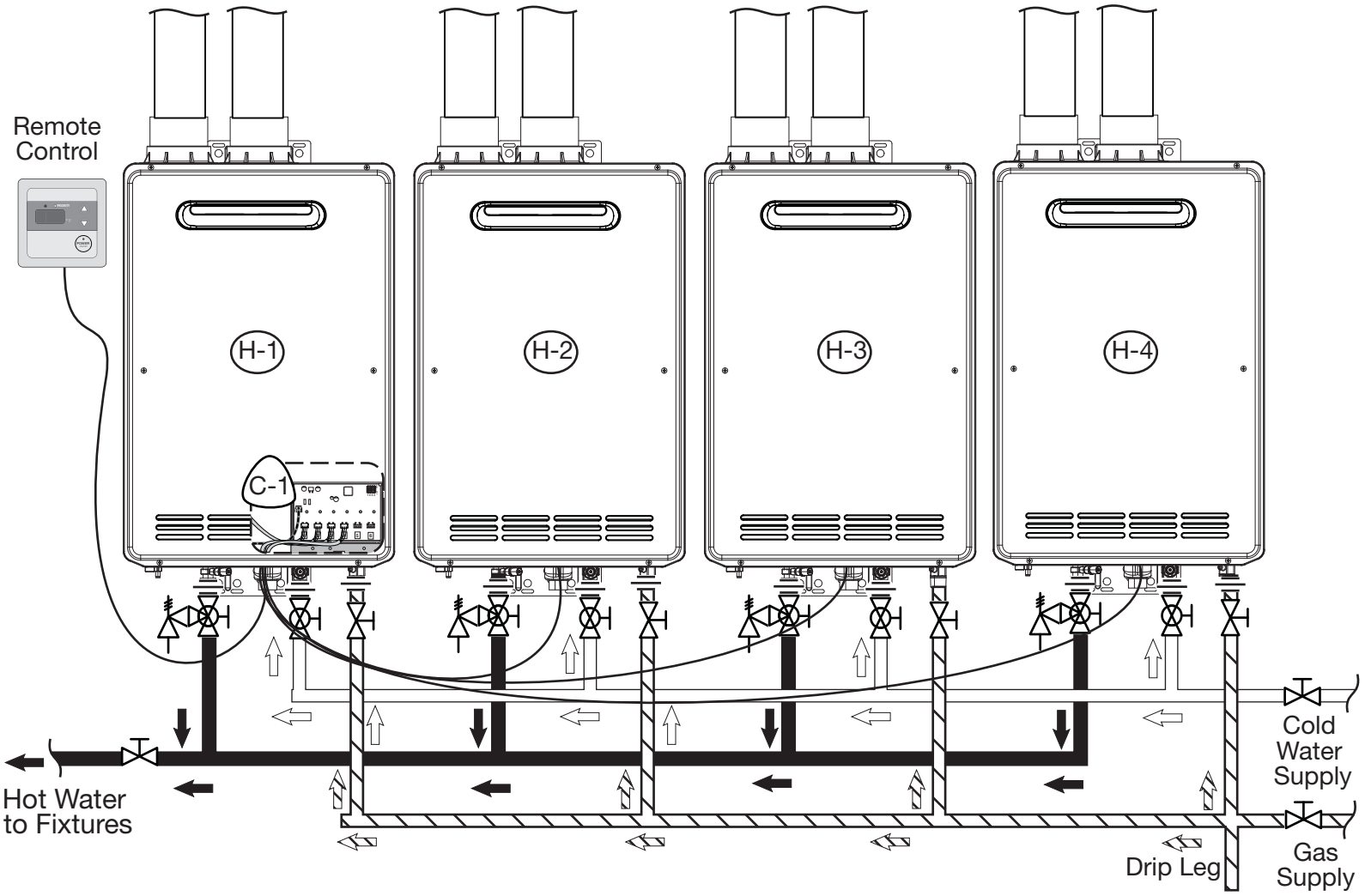
(1) 6ft Manifold Control Cables (RTG20213C)
(3) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(3) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12103 5/12

- Cold Water Isolator Valve Assembly
- Hot Water Isolator Valve Assembly
- Pressure Relief Valve
- Circulation Pump
- Shut-off Valve
- Check Valve
- Union
- Gas Pipe
- Cold Water Pipe
- Hot Water Pipe
- Return Circulation Line

Four Unit Tankless Installation



Written System Description

Four Unit Tankless Installation:
Four tankless water heaters shall be installed with MIC-6 Manifold Controller, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1 ¼" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-4 Indoor or Outdoor Tankless Water Heater
C-1 MIC-6 Manifold Controller (RTG20213A)

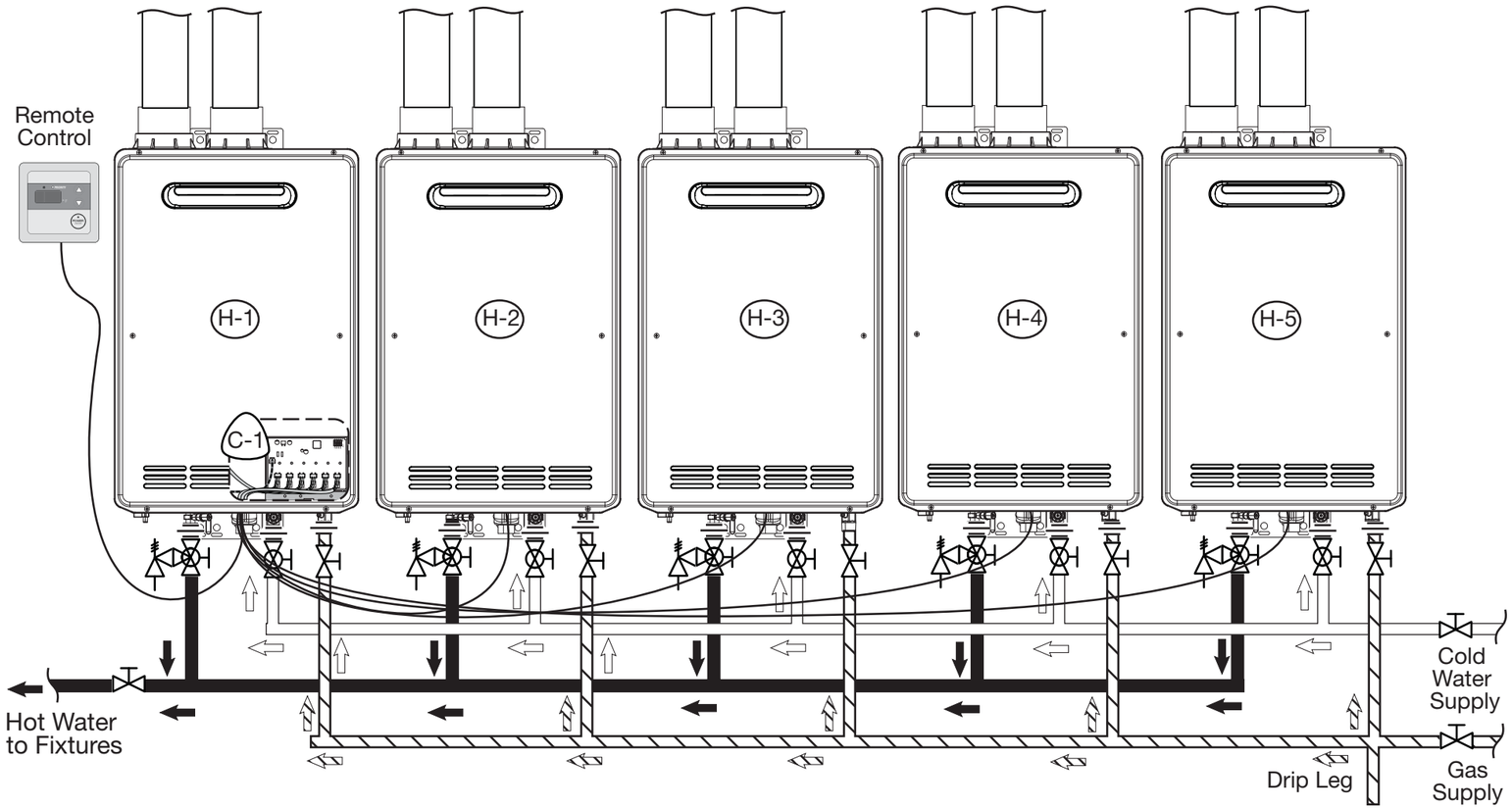
(2) 6ft Manifold Control Cables (RTG20213C)
(4) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(4) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12104 5/12

- Cold Water Isolator Valve Assembly
- Hot Water Isolator Valve Assembly
- Pressure Relief Valve
- Circulation Pump
- Shut-off Valve
- Check Valve
- Union
- Gas Pipe
- Cold Water Pipe
- Hot Water Pipe
- Return Circulation Line

Five Unit Tankless Installation



Written System Description

Five Unit Tankless Installation:
Five tankless water heaters shall be installed with MIC-6 Manifold Controller, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1 ½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-5 Indoor or Outdoor Tankless Water Heater
C-1 MIC-6 Manifold Controller (RTG20213A)

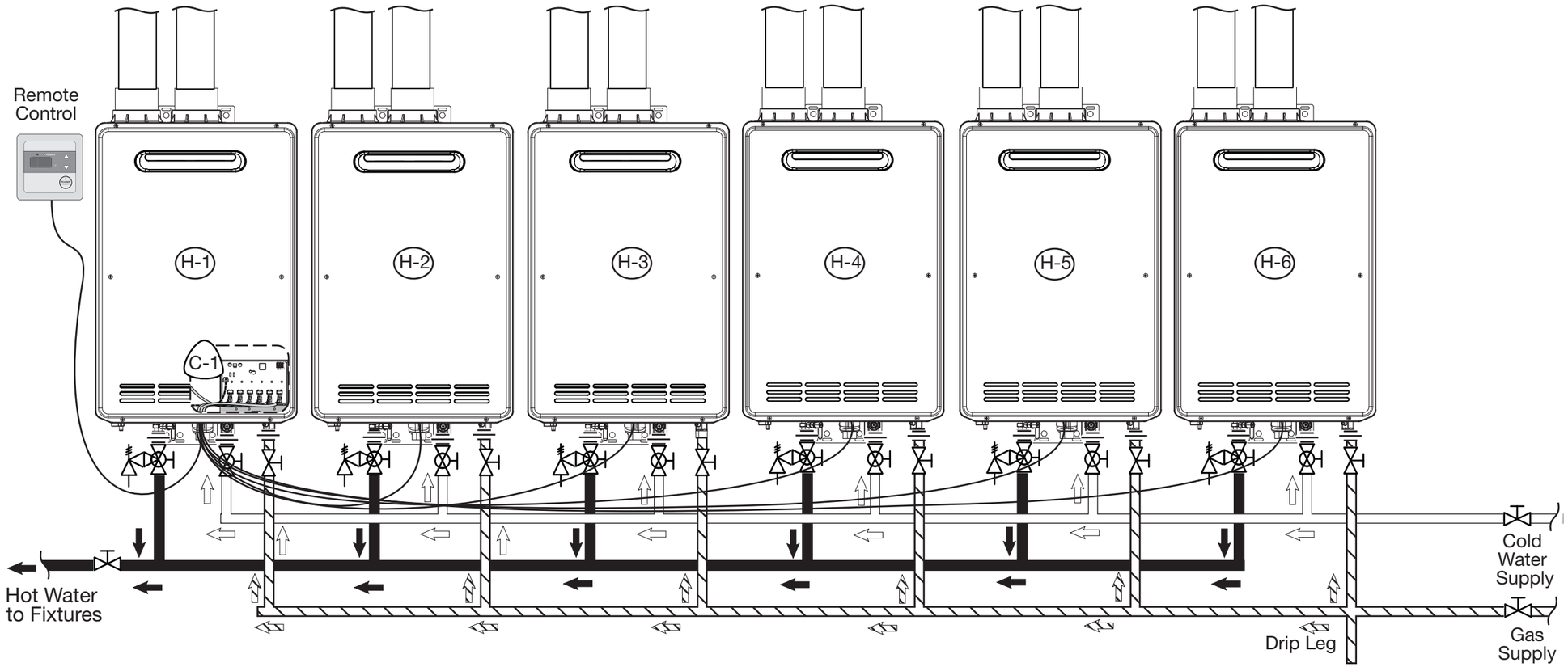
(1) 6ft Manifold Control Cables (RTG20213C)
(2) 18ft Manifold Control Cables (RTG20213D)
(5) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(5) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12104 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Six Unit Tankless Installation



Written System Description

Six Unit Tankless Installation:
Six tankless water heaters shall be installed with MIC-6 Manifold Controller, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1 ½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-6 Indoor or Outdoor Tankless Water Heater
C-1 MIC-6 Manifold Controller (RTG20213A)

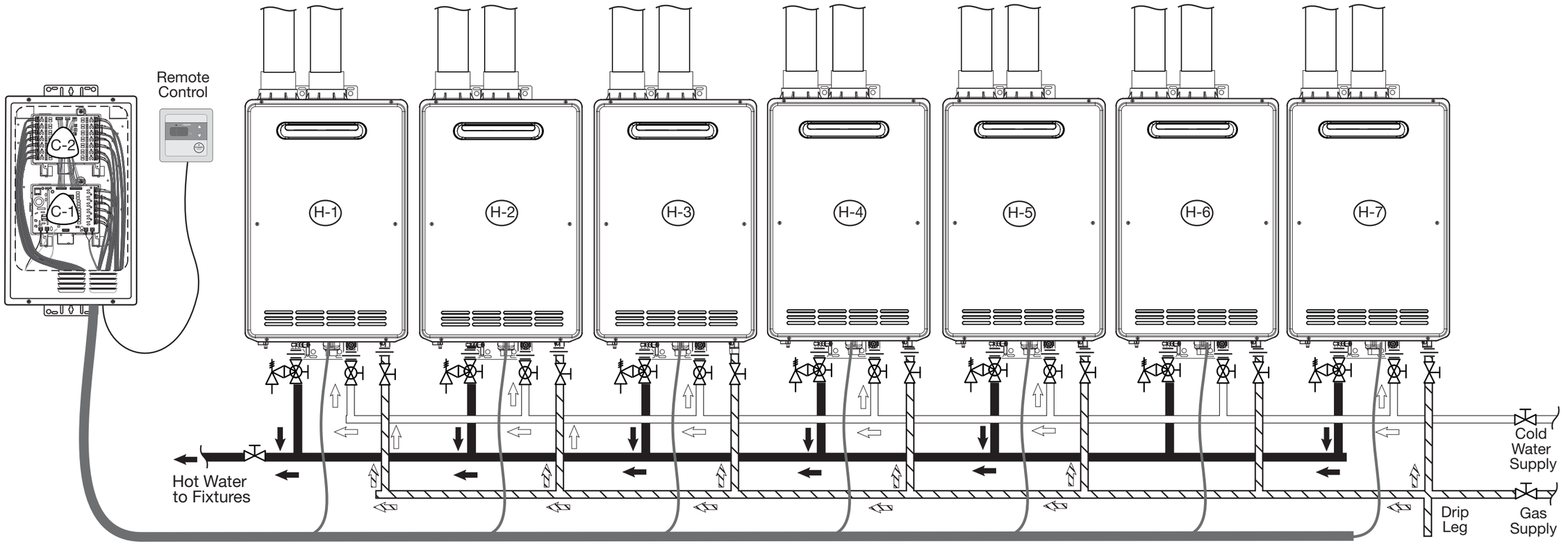
(1) 6ft Manifold Control Cables (RTG20213C)
(3) 18ft Manifold Control Cables (RTG20213D)
(6) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(6) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12104 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Seven Unit Tankless Installation



Written System Description

Seven Unit Tankless Installation:
Seven tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-07 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

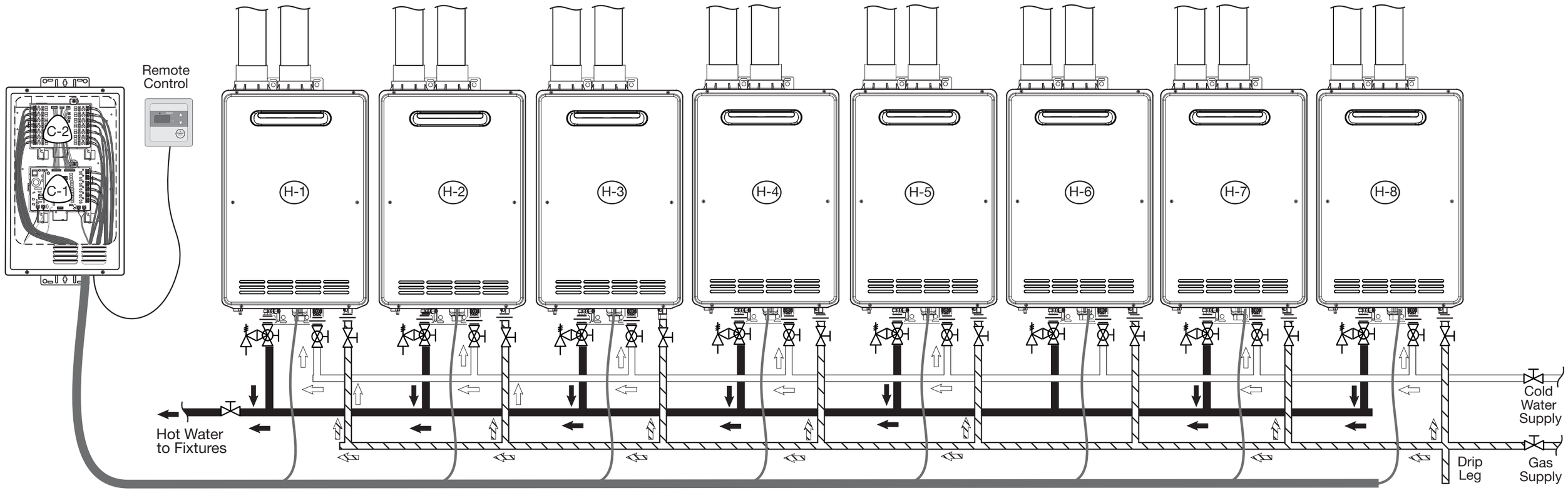
(7) Manifold Control Cables (16, 32, or 65ft lengths available)
(7) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(7) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12107 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Eight Unit Tankless Installation



Written System Description

Eight Unit Tankless Installation:
Eight tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-08 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

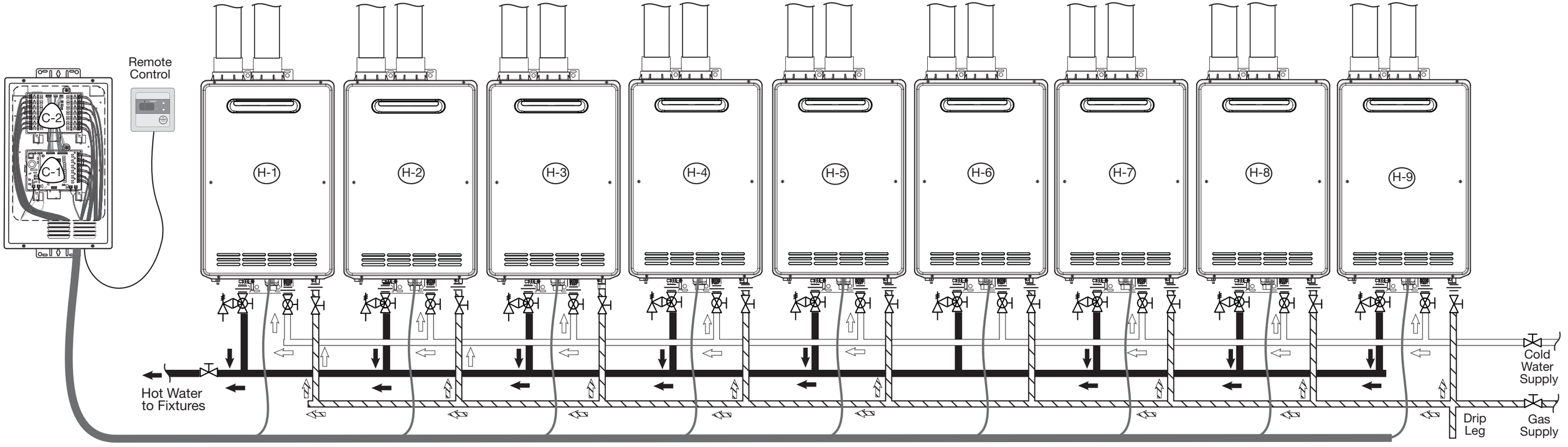
(8) Manifold Control Cables (16, 32, or 65ft lengths available)
(8) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(8) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12108 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Nine Unit Tankless Installation



Written System Description

Nine Unit Tankless Installation:
Nine tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-09 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

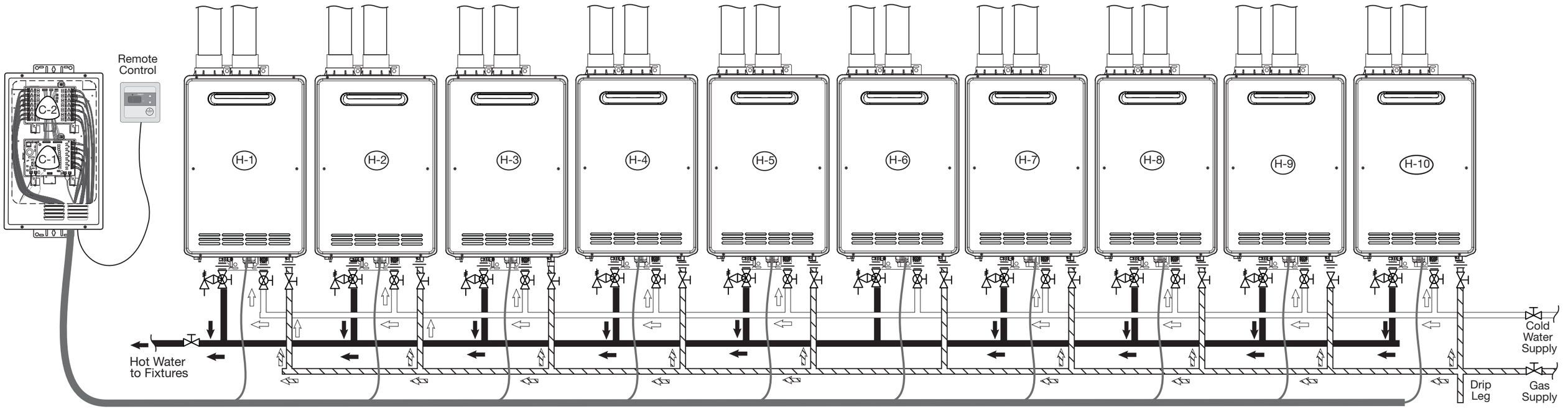
(9) Manifold Control Cables (16, 32, or 65ft lengths available)
(9) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(9) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12109 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Ten Unit Tankless Installation



Written System Description

Ten Unit Tankless Installation:
Ten tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

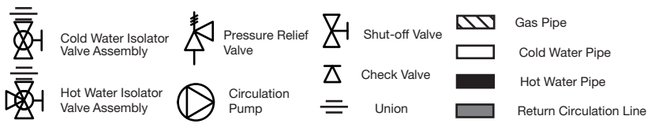
System Components

H-1-10 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

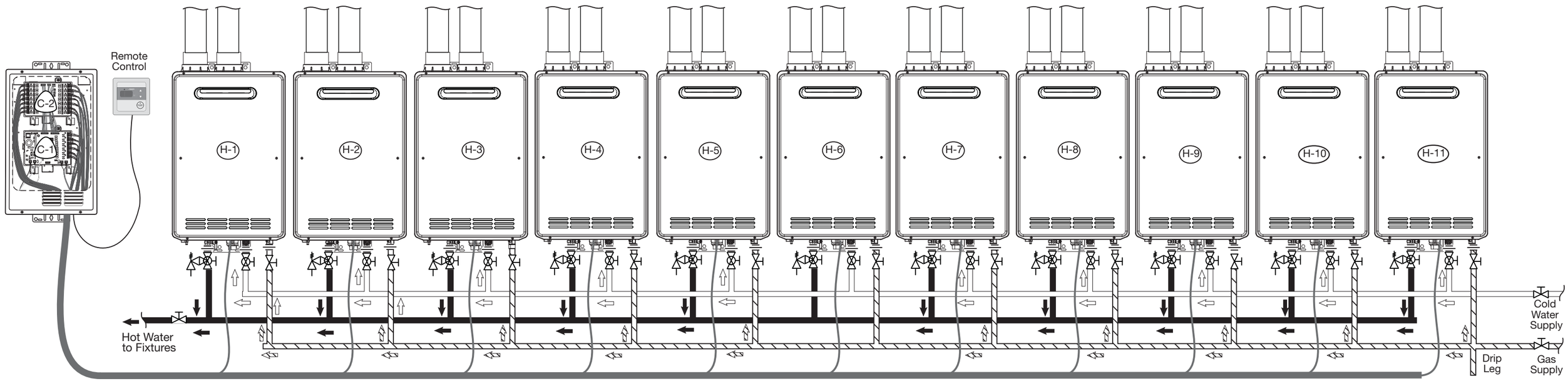
(10) Manifold Control Cables (16, 32, or 65ft lengths available)
(10) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(10) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12110 5/12



Eleven Unit Tankless Installation



Written System Description

Eleven Unit Tankless Installation:
Eleven tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-11 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

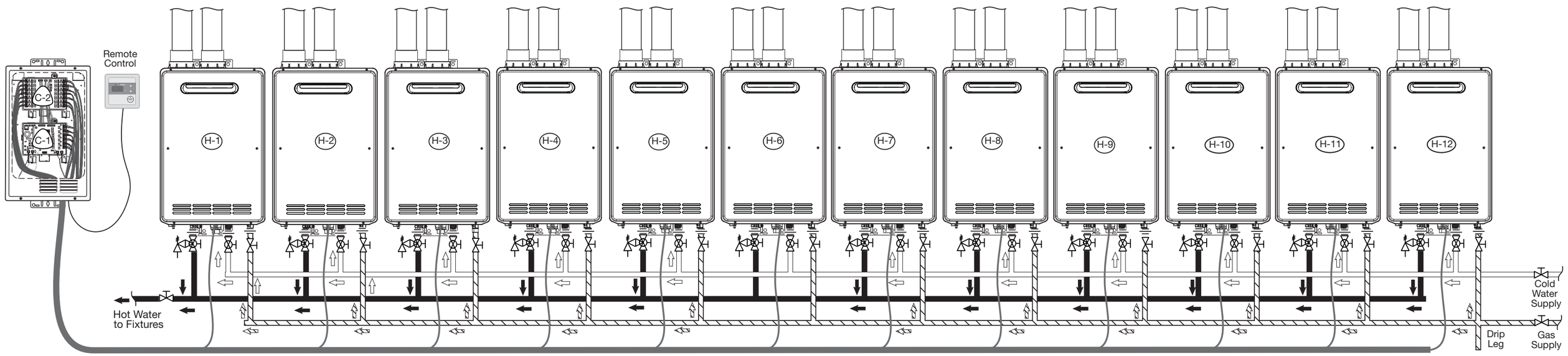
(11) Manifold Control Cables (16, 32, or 65ft lengths available)
(11) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(11) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12111 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Twelve Unit Tankless Installation



Written System Description

Twelve Unit Tankless Installation:
Twelve tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

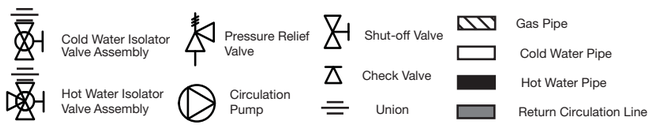
System Components

H-1-12 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

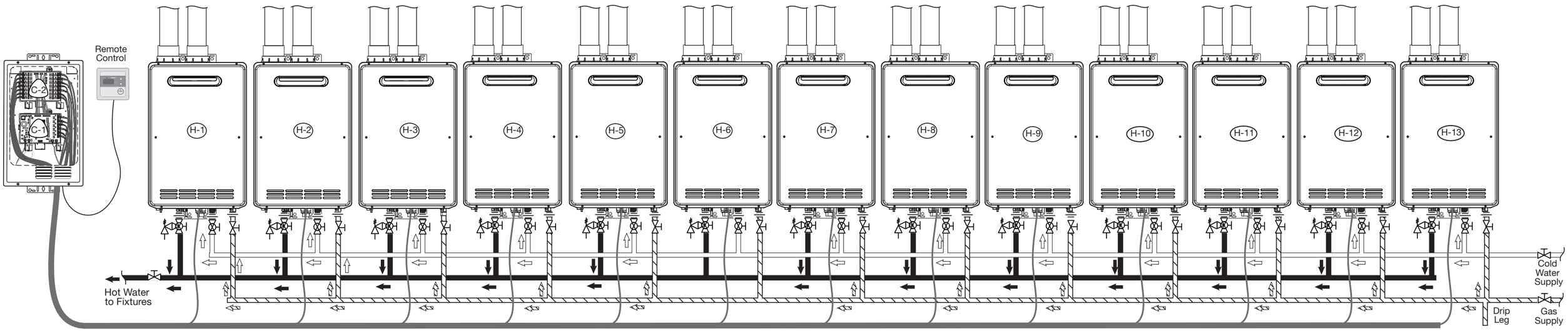
(12) Manifold Control Cables (16, 32, or 65ft lengths available)
(12) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(12) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12112 5/12



Thirteen Unit Tankless Installation



Written System Description

Thirteen Unit Tankless Installation:
Thirteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-13 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

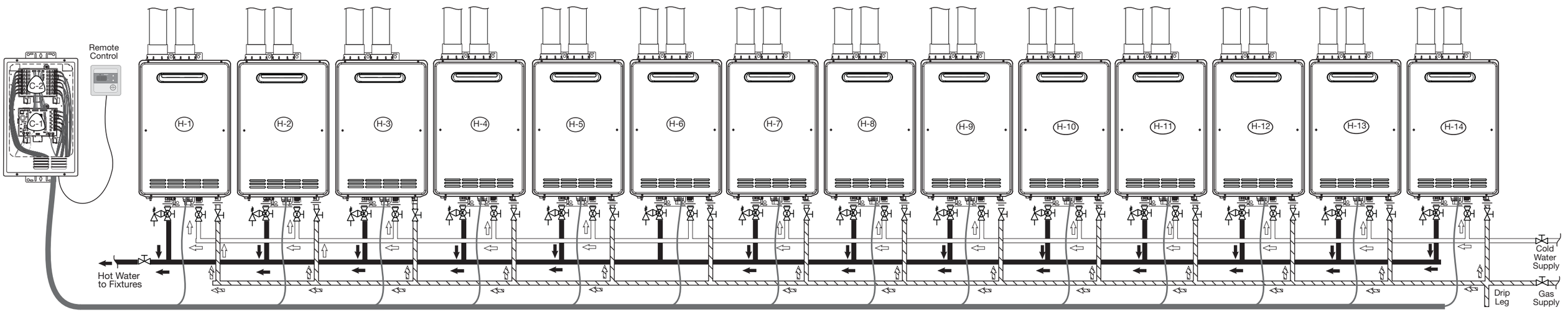
(13) Manifold Control Cables (16, 32, or 65ft lengths available)
(13) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(13) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12113 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Fourteen Unit Tankless Installation



Written System Description

Fourteen Unit Tankless Installation:
Fourteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-14 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

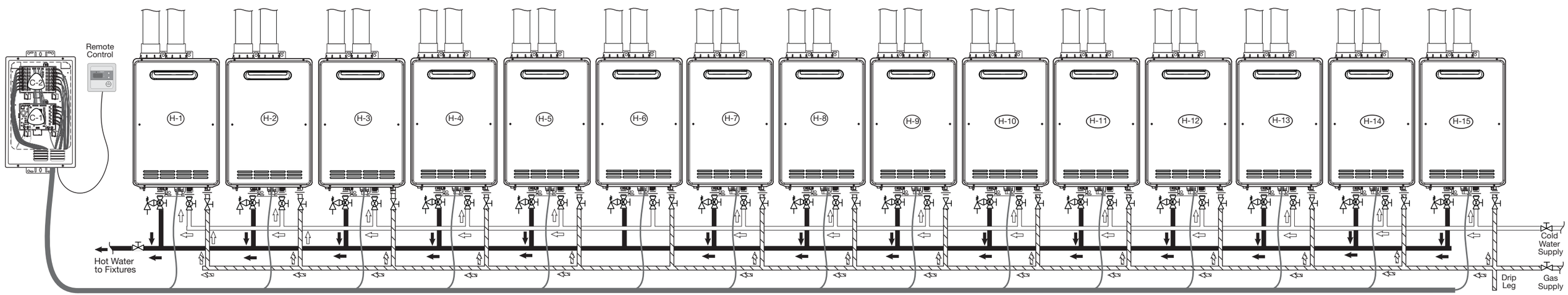
(14) Manifold Control Cables (16, 32, or 65ft lengths available)
(14) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(14) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12114 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Fifteen Unit Tankless Installation



Written System Description

Fifteen Unit Tankless Installation:
Fifteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of a 2½" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-15 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

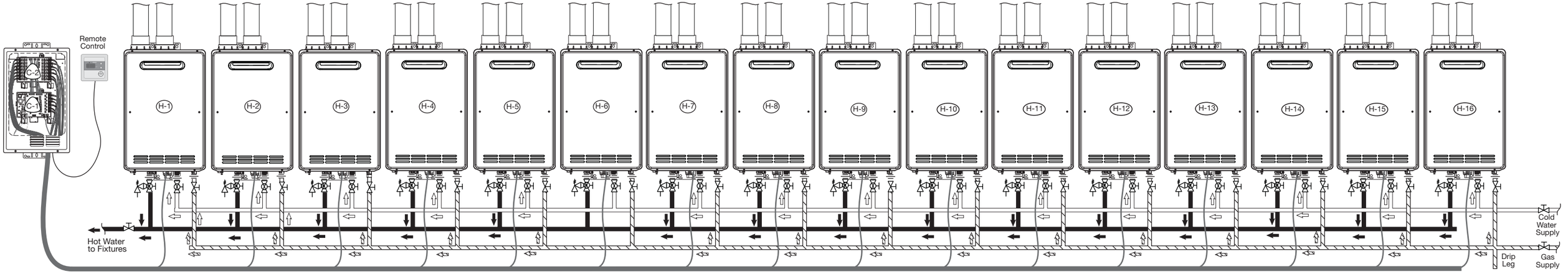
(15) Manifold Control Cables (16, 32, or 65ft lengths available)
(15) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(15) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12115 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Sixteen Unit Tankless Installation



Written System Description

Sixteen Unit Tankless Installation:
Sixteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 3” pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

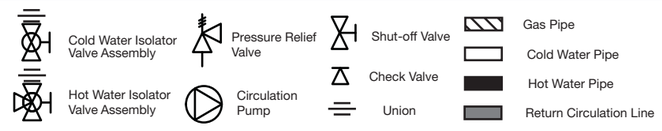
System Components

H-1-16 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

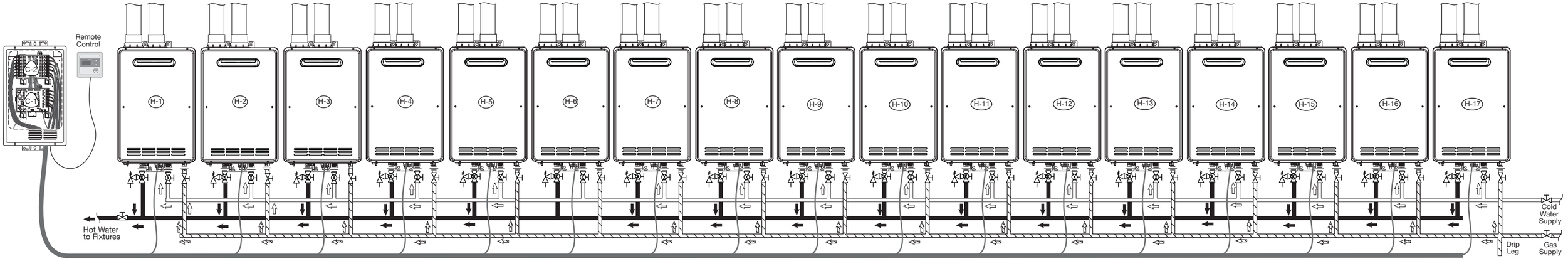
(16) Manifold Control Cables (16, 32, or 65ft lengths available)
(16) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(16) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12116 5/12



Seventeen Unit Tankless Installation



Written System Description

Seventeen Unit Tankless Installation:
Seventeen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 3" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-17 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

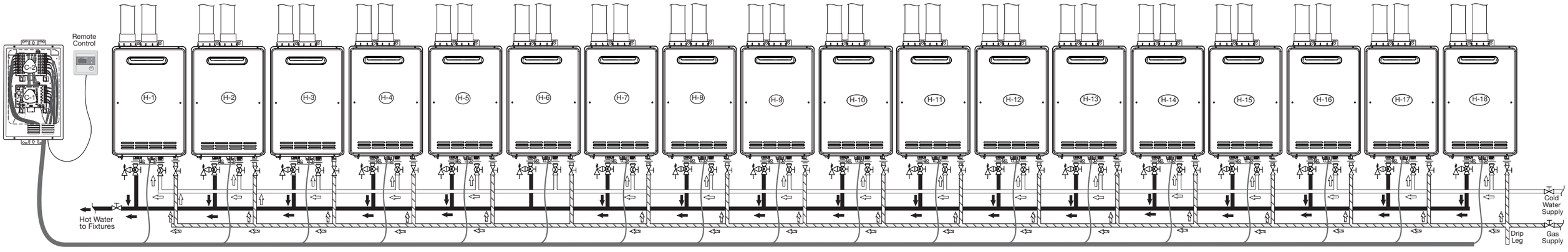
(17) Manifold Control Cables (16, 32, or 65ft lengths available)
(17) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(17) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12117 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Eighteen Unit Tankless Installation



Written System Description

Eighteen Unit Tankless Installation:
Eighteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 3” pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

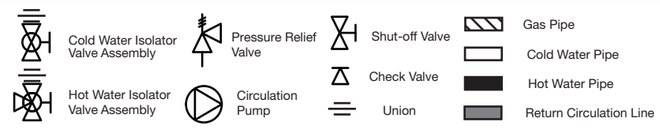
System Components

H-1-18 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

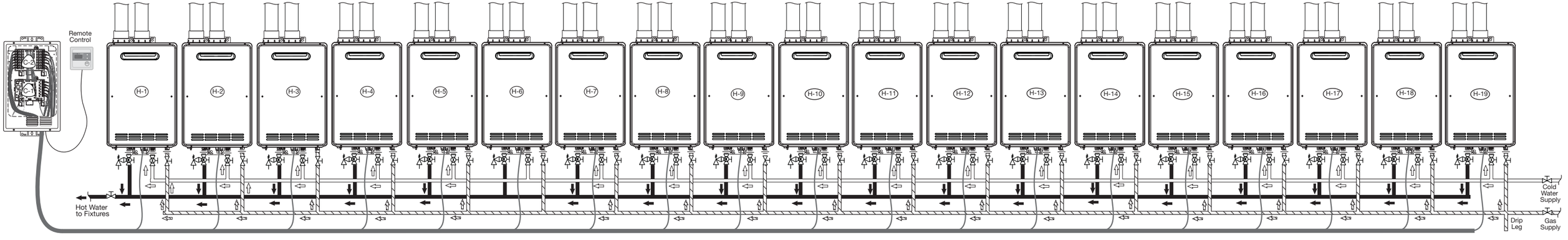
(18) Manifold Control Cables (16, 32, or 65ft lengths available)
(18) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(18) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12118 5/12



Nineteen Unit Tankless Installation



Written System Description

Nineteen Unit Tankless Installation:
Nineteen tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 3” pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-19 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

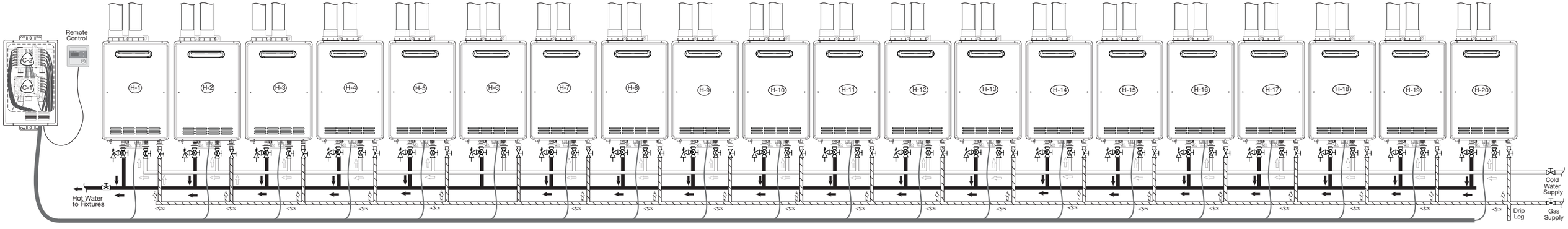
(19) Manifold Control Cables (16, 32, or 65ft lengths available)
(19) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(19) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12119 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Twenty Unit Tankless Installation



Written System Description

Twenty Unit Tankless Installation:
Twenty tankless water heaters shall be installed with MIC-185 Manifold Controller and MICS-180 Expansion Card, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 3” pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

System Components

H-1-20 Indoor or Outdoor Tankless Water Heater
C-1 MIC-185 Manifold Controller (RTG20126A)
C-2 MICS-180 Controller Expansion Card (RTG20126B)

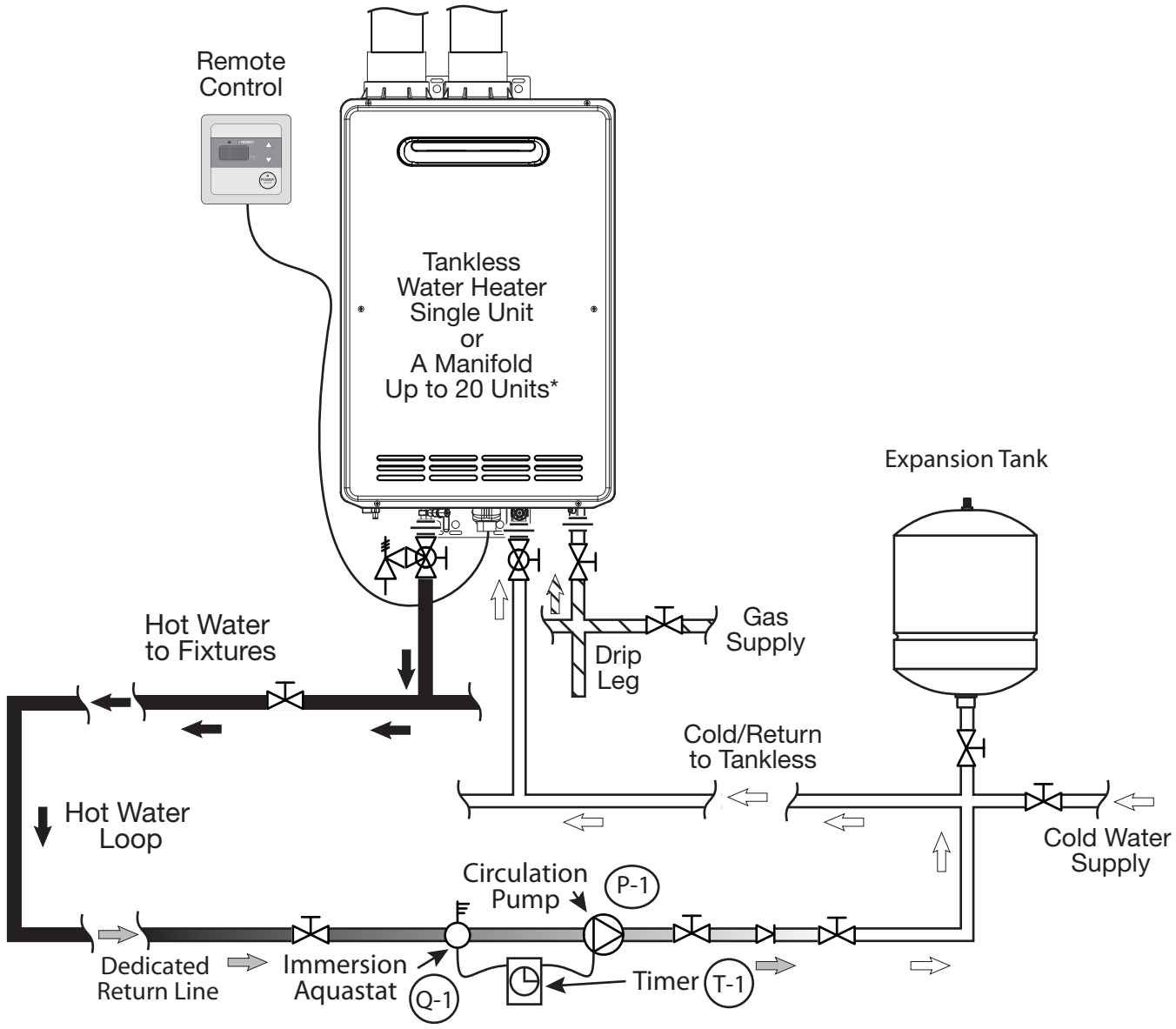
(20) Manifold Control Cables (16, 32, or 65ft lengths available)
(20) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(20) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12120 5/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Direct Return Recirculation



*See the Tankless Piping Diagram Book for details on various manifold systems

Storage Bypass N/C

Written System Description

Direct Return Circulation:
A single or multi-unit manifold of tankless water heaters shall be installed to supply hot water to the building. A dedicated hot water loop around the building will return connected to the water main cold water supply feeding the tankless. The hot water loop shall be supplied by a pump that is controlled with an aquastat and timer. The aquastat must have a set point that is 10˚F lower than the thermostat setting of the tankless. The timer shall be set so the pump only runs during periods of required demand.

System Components

P-1 Circulation Pump
- Sized to meet a flow of 5 GPM @ 25ft of Head pressure, plus building head.

T-1 24-Hour Programmable timer
- Set to turn off the pump in off peak periods

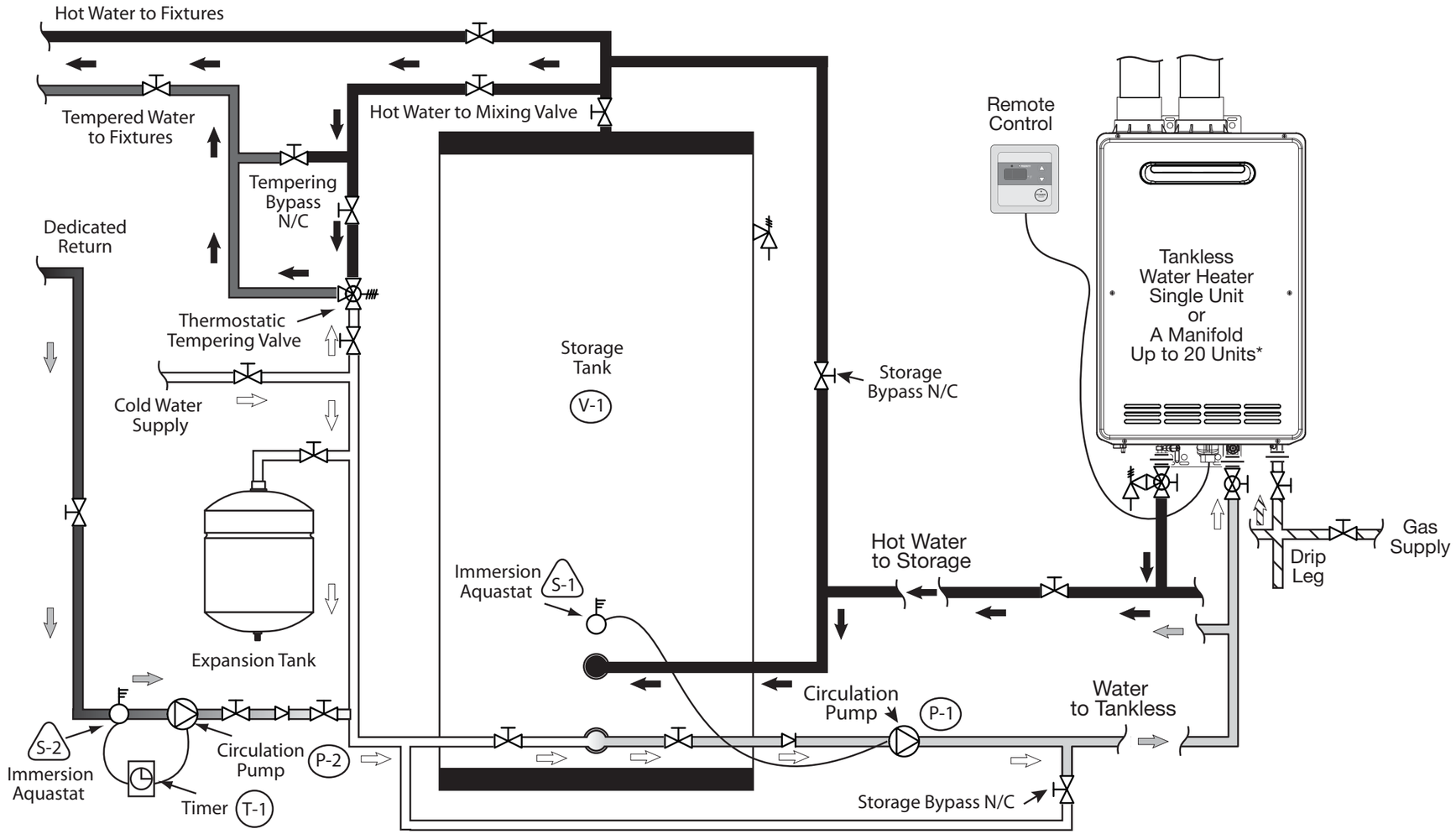
Q-1 Immersion Aquastat
- Set point at 10˚F below tankless set temperature.

Legend

Drawing No TKPD12121 5/12

- Cold Water Isolator Valve Assembly
- Hot Water Isolator Valve Assembly
- Pressure Relief Valve
- Circulation Pump
- Shut-off Valve
- Check Valve
- Union
- Gas Pipe
- Cold Water Pipe
- Hot Water Pipe
- Return Circulation Line

Storage System with Tankless for Recovery



*See the Tankless Piping Diagram Book for details on various manifold systems

Written System Description

Storage System with Tankless for Recovery and Redundency

Tankless water heater(s) shall be installed indoors or outside with a remote control per the manufacture instructions.
The tankless shall be plumbed in conjunction with a commercial rated storage tank(s). The tankless will act to recover the storage tank through a high capacity pump (P-1) controlled by an immersion aquastat (S-1) installed in the tank(s). Cold water will enter the bottom inlet of the storage tanks, hot water will exit the tanks feeding a thermostatically control tempering valve and untempered line that feeds the domestic use hot water. The end of the hot water building loop will return to the bottom inlet of the storage tank through a recirculation pump sized for the building head (P-2) and controlled by an immersion aquastat (S-2) that is installed in the return line. A timer (T-1) will be used to shut down the pump during off-peak periods.

S-1 Should be set 5F below the tankless temperature setting; S-2 should be set 5F below the mixing valve temperature. T-1 should be set to shut off the loop during periods when hot water is not needed, and on an hour before typical use periods to help reduce energy usage.

Normally Closed Bypass valves may be installed in the system to prevent down time in the event of a tank failure, allowing the system to operate a reduced capacity. All plumbing, pipe size, valves, should be specified by mechanical engineer or the installing contractor.

System Components

P-1 Circulation Pump
- Sized to meet 9.5 GPM times the Number of tankless heater, @ 50ft of Head Pressure (Example: 6 Tankless units Pump would need to be rated at 57 GPM @ 50ft of Head)

V-1 Storage Tank sized to meet the dump load requirments of the application

S-1 Immersion Aquastat - Set 5 to 10˚F below the Tankless temperature setting

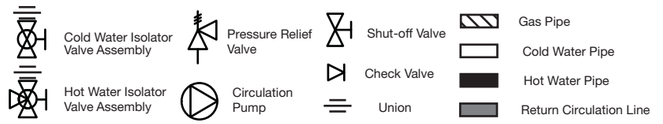
P-2 Circulation Pump
- Sized to meet the flow and head required for the building.

T-1 24-Hour Programmable timer
- Set to turn off the pump in off peak periods

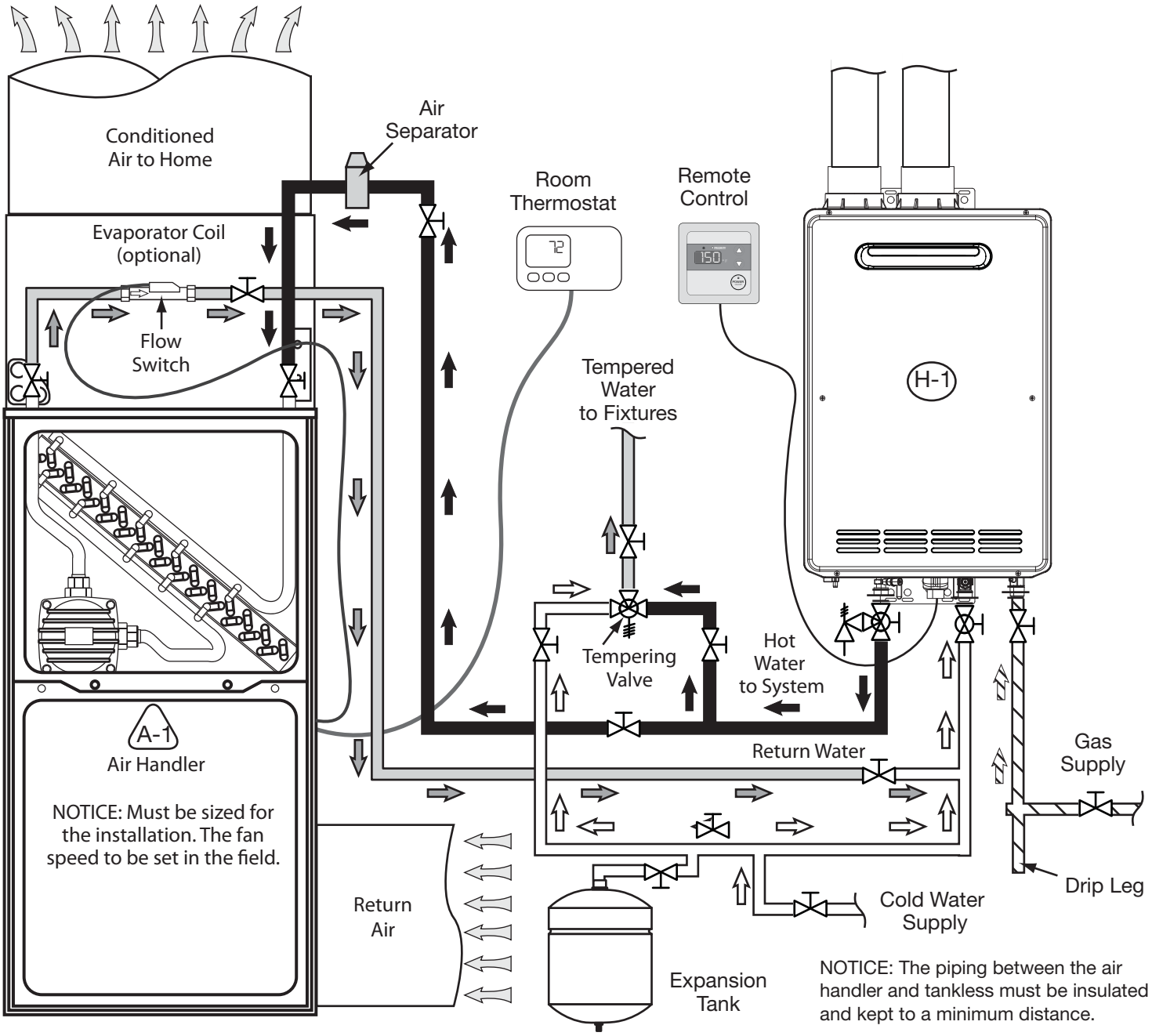
Q-1 Immersion Aquastat
- Set point at 10˚F below tank set temperature.

Legend

Drawing No TKPD12124 6/12



Tankless with Hydronic Air Handler



Written System Description

Tankless Installation with Air Handler:

One tankless water heaters shall be installed and connected to a manufacturer approved hydronic air handler, such as a Rheem or RUUD. The tankless shall be plumbed to provide both potable hot water and hot water to the air handler. A tempering valve shall be used to provide domestic hot water as the tankless will need to be set at temperatures higher than 120F. When there is a call for room heat, the air handler will turn on the intergrated pump and the flow will activate the tankless heater. A flow switch will verify that a minimum flow of 1 GPM is achieved from the tankless before the blower is turned on.
Programming will ensure domestic priority and prevent stagnation of the water. See the Air Handler spec sheet for more information on sizing, heating capacities, and additional considerations.

System Components

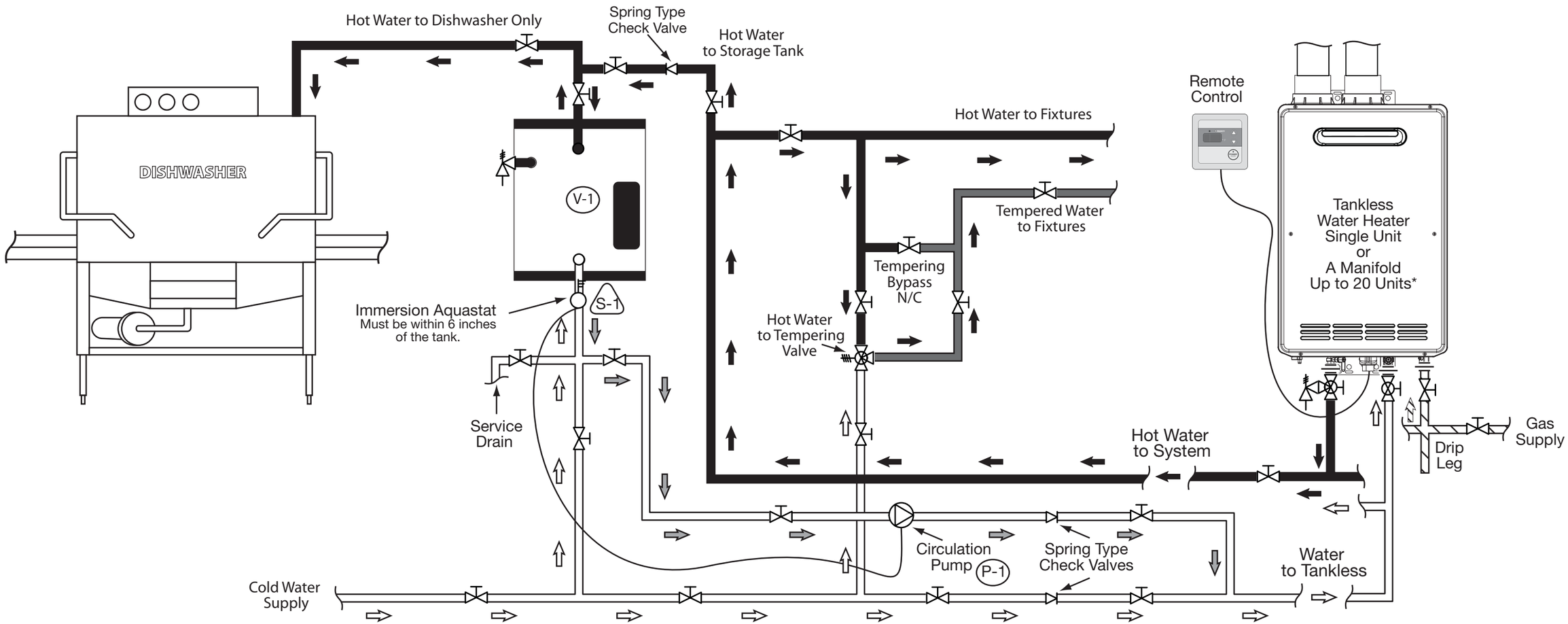
H-1 Indoor or Outdoor Tankless Water Heater
A-1 Hydronic Air Handler - Manufacturer Approved (intergrated pump, check valve, and flow switch)
(1) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(1) Pressure Relief Valve for tankless
(1) Expansion Tank
(1) Air Separator Valve
(1) Tempering Valve

Legend

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line

Drawing No TKPD12132 9/12

Tankless System with Dump Tank for High Efficiency Dishwashers



*See the Tankless Piping Diagram Book for details on various manifold systems

Written System Description

Tankless System with Dump Tank for High Efficiency Dishwashers

Tankless water heater(s) shall be installed indoors or outside with a remote control per the manufacture instructions.
The tankless shall be plumbed to supply hot water to the kitchen as required, an optional tempering valve may be used to supply public use facilities or as local codes require. If recirculation is required for the building see drawing TKPD12121 Direct Recirculation.

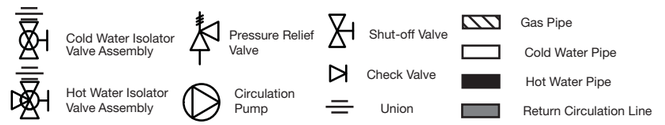
High-Efficiency dishwashers are those that use a small amount of hot water per cycle, typically 1 to 3 gallons, but require the water to be deliver in just 10 to 15 seconds. Typically a tankless water heater(s) cannot keep up with this demand of 20 GPM or more within the required delivery period. The solution is to install a small point of use tank type water heater to act as a storage tank. The tank shall be plumbed with a pump and aquastat so that the hot water is recovered by the tankless in between the cycle times of the dishwasher. This system will properly supply this short fill cycles of the dishwasher without loosing water pressure on the remainder of the hot water system. The tank should be sized to cover several cycles of the dishwasher, typically 6 to 20 gallons in capacity. The flow rate of the pump should be sized to recover the capacity of the tank between dishwasher cycles. The aquastat should be installed within 6-inches of the inlet to the tank, and set 5˚F below the thermostat setting of the tankless.

System Components

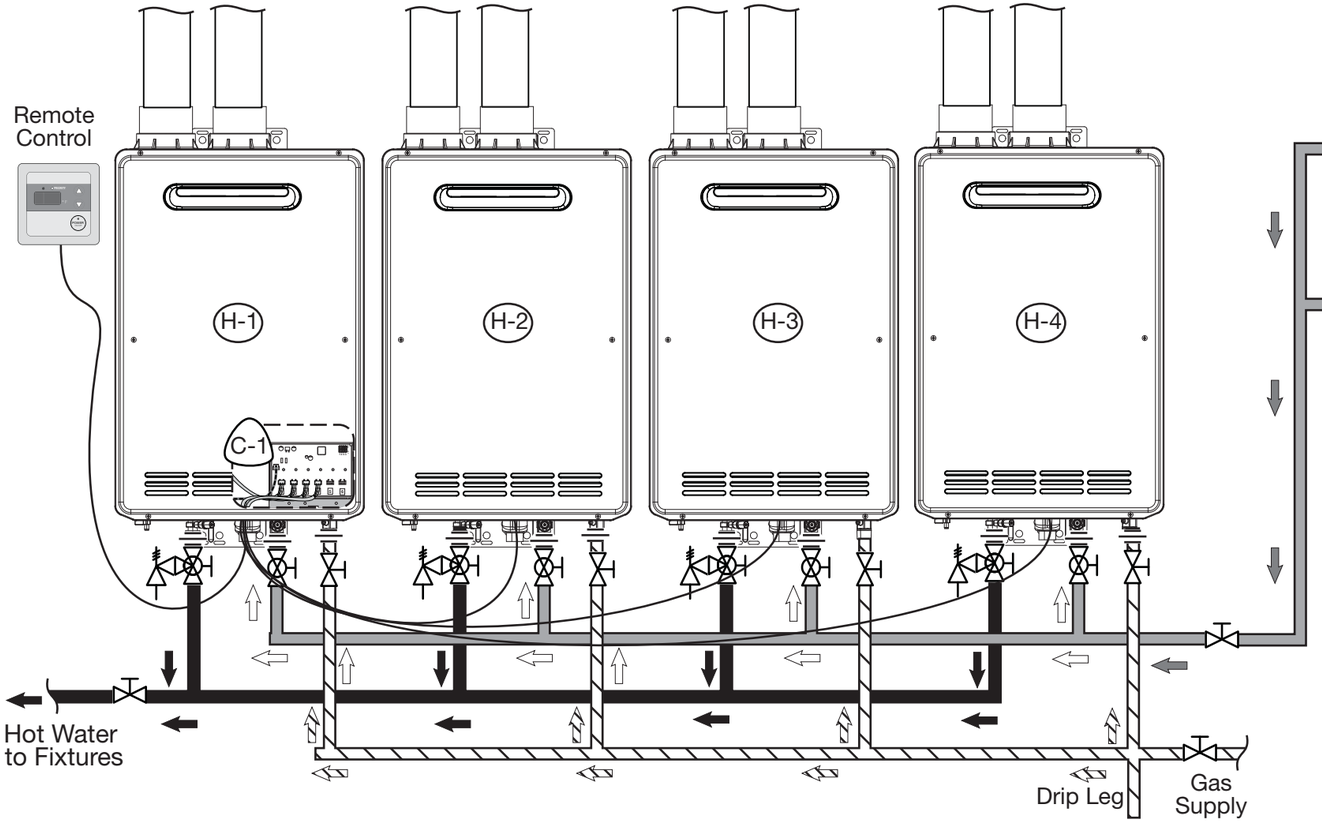
P-1	Circulation Pump - Sized to meet a minimum of 5 GPM @ 25ft of Head Pressure
V-1	Point of Use Water Heater, no power connected, sized to meet the dump load requirements of the dishwasher (6 to 20 Gallons in capacity)
S-1	Immersion Aquastat - Set 5˚F below the Tankless temperature setting

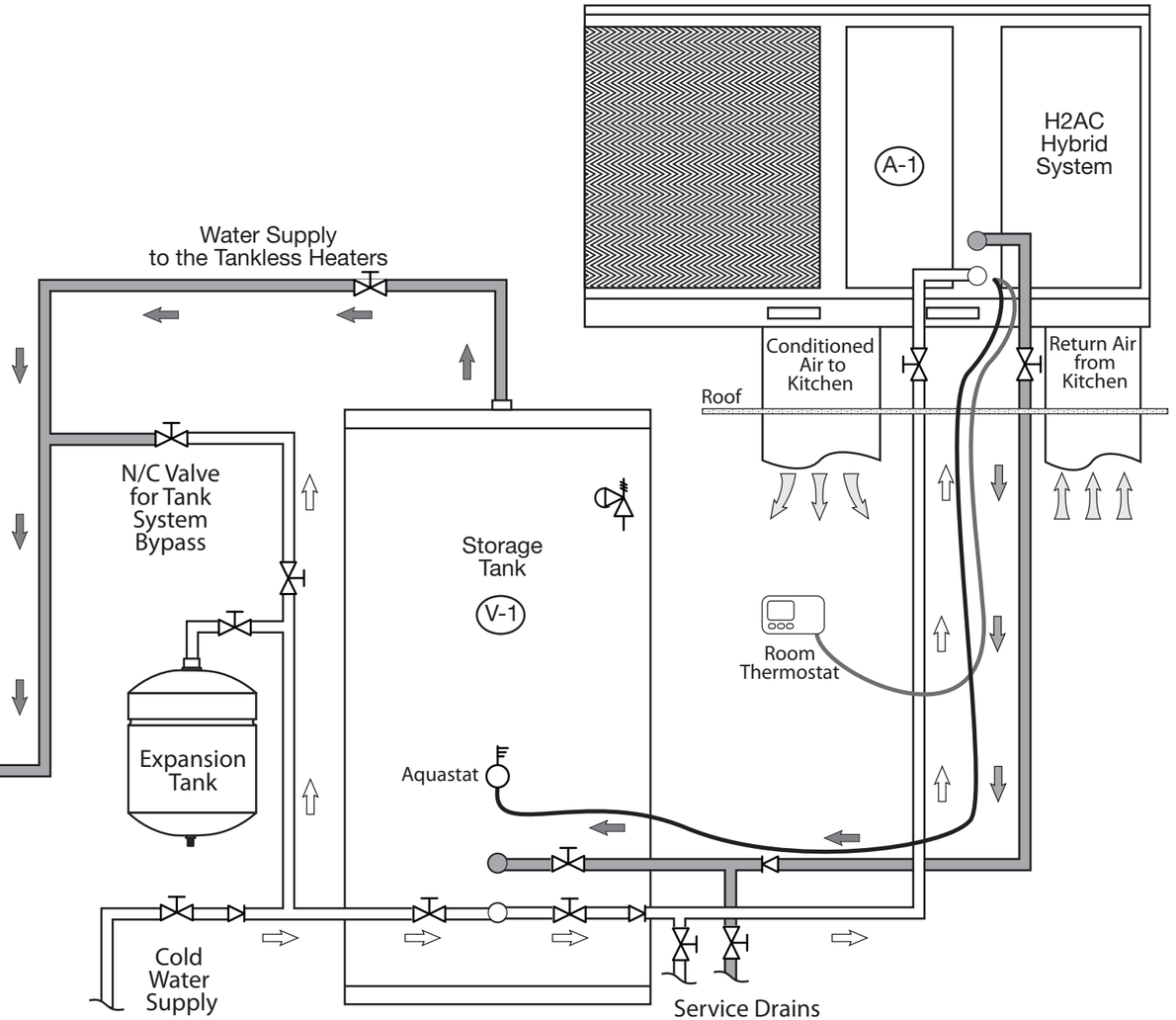
Legend

Drawing No TKPD12134 8/12



H2AC HYBRID SYSTEM WITH TANKLESS





Written System Description

Four Unit Tankless Installation with H2AC Hybrid System:
Four tankless water heaters shall be installed with MIC-6 Manifold Controller, a single remote control and vented to the outside per the manufacture instructions. The tankless units shall be plumbed in parallel manifold system with a minimum gas and water header of an 1 ¼" pipe or as code requires. Cold water will feed the tankless units, the tankless shall supply a single temperature setting of water for kitchen or appliance use, see alternate drawings for multi-temperature systems. Plumbing, pipe size, valves, all to be determined by mechanical engineers or the installing contractor.

A roof top heat pump AC system, H2AC Hybid system, shall be installed above the kitchen facilities. The system will cool the kitchen as it draws hot air from the kitchen. This heat will be transfered to water stored in a 120 gallon tank. The H2AC system can produce an average of 120˚F tempered water, total temperature and amount depend upon usage, available heat from the kitchen, and time of year.

The tempered water will be drawn to supply the tankless, which will heat the tempered water to the required temperature for the facility. The tankless system should be sized to handle the entire facility load alone, the system will self adjust to the required demand.

System Components

H-1-4	Indoor or Outdoor Tankless Water Heater
C-1	MIC-6 Manifold Controller (RTG20213A)
V-1	120 Gallon Storage Tank
A-1	H2AC Hybrid Roof Top System 10-ton

(2) 6ft Manifold Control Cables (RTG20213C)
(4) Tankless Service Valve Kits (Webstone EXP2 or equivalent)
(4) Pressure Relief Valve for tankless

Legend

Drawing No TKPD12135 8/12

Cold Water Isolator Valve Assembly
Hot Water Isolator Valve Assembly
Pressure Relief Valve
Circulation Pump
Shut-off Valve
Check Valve
Union
Gas Pipe
Cold Water Pipe
Hot Water Pipe
Return Circulation Line