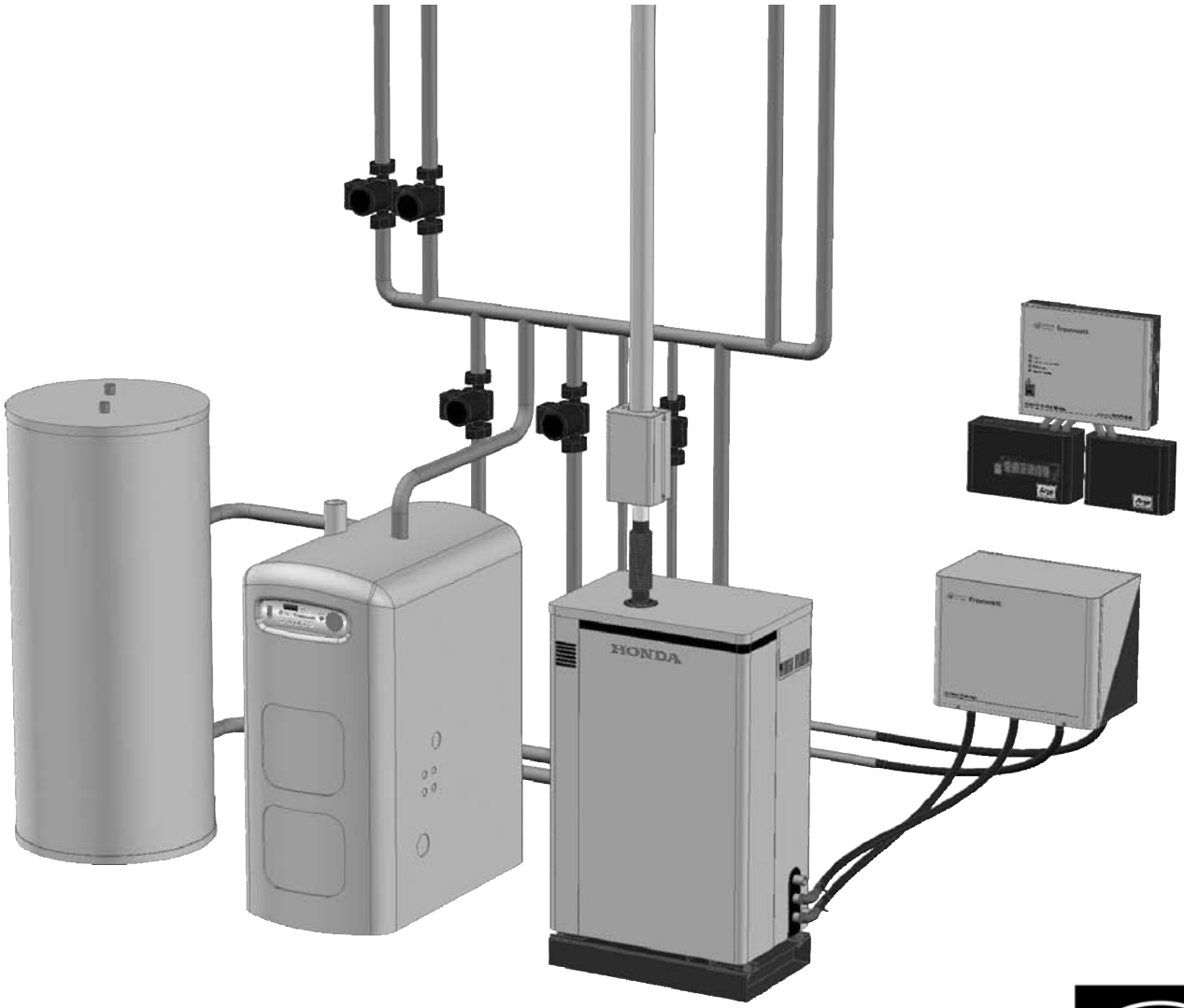
SUPPLEMENTAL INSTRUCTIONS

freewatt®

Hydronic Freewatt-Ready Boiler Configuration And Hydronic Freewatt-Ready System Completion Kit



ecr innovative living™

An ISO 9001-2000 Certified Company

P.O. Box 4729
Utica, NY 13504-4729
www.freewatt.com
www.ecrinternational.com

ENERGY STAR

MEMBER: *The Hydronics Institute*

P/N# 240007654, Rev. B [11/08]

TABLE OF CONTENTS

HYDRONIC FREEWATT SYSTEM MODEL HD-Z

This manual is to be used in conjunction with the following manuals:
Freewatt Boiler Installation, Operation & Maintenance Manual
ARGO ARM Controls Installation Manual
HAI Thermostat Owner's Manual

1 - INTRODUCTION

This manual is only a supplement to the Installation and Operation Manual for the freewatt Boiler and ARGO Control Installation Manuals. This manual outlines the configuration and wiring for a freewatt boiler installation in a freewatt-ready configuration to seamlessly upgrade to a Climate Energy Hydronic freewatt System at some future date. The freewatt boiler will provide heat to the building space in a highly efficiency manner and will only generate power when the Honda MCHP unit is installed during the future upgrade.

This manual is intended for use by a freewatt-certified, qualified professional installer or service technician. Please keep this manual near the system for future use by your installer or service technician.

2 - SAFETY SYMBOLS

DANGER Indicates an imminently hazardous situation which, if not avoided, WILL result in death, serious injury or substantial property damage.

CAUTION Indicates an imminently hazardous situation which, if not avoided, may result in injury or property damage.

WARNING Indicates an imminently hazardous situation which, if not avoided, may result in death, serious injury or substantial property damage.

NOTICE Information contained in this manual pertains to the correct installation of this unit.

IMPORTANT: Read the following instructions COMPLETELY before installing!!

3 - WARNINGS

WARNING This appliance has been equipped for residential installations. If used for commercial applications, any and all additional code requirements must be adhered to for installation. This may require additional controls or system components.
The manufacturer is not responsible for any field installation changes made to a system installation that are not described or acknowledged in this manual.

WARNING If the information in these instructions is not followed exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.

WARNING These instructions are intended as an aid to qualified, certified service personnel for proper installation, adjustment and operation of this system. Read these instructions before attempting installation or operation. Failure to follow these instructions could cause a malfunction of the system and result in death, serious bodily injury, and/or property damage. For assistance or additional information, please consult a qualified installer, service agency or the gas supplier.

WARNING Natural gas and propane are normally odorized by the fuel supplier. In some cases, the odorant may not be perceivable. Installation of UL and CUL recognized fuel gas detectors installed in accordance with their manufacturer's instructions is recommended as an additional margin of safety.

WARNING This Product Must Be Installed By A Licensed Plumber Or Gas Fitter when Installed Within The Commonwealth Of Massachusetts.

WARNING The exhaust gases from this furnace contain chemicals which on some occasions may include carbon monoxide (CO). CARBON MONOXIDE is an odorless, tasteless, clear colorless gas, which is highly toxic. Even low concentrations are suspected of causing birth defects and other reproductive harm.
UL and ULC recognized co detectors are required for all buildings equipped with the freewatt system. All co detectors should be installed in accordance with their manufacturer's instructions and applicable local building codes.

4 - HYDRONIC FREEWATT SYSTEM

The major purpose of this document is to review the Hydronic freewatt System with the installer and assist in his installation of the boiler and controls to ensure that the future upgrade of the freewatt boiler is easily accomplished.

The Hydronic freewatt System consists of five major components: freewatt boiler, Hydronic Hybrid Integration Module, freewatt control module, ARGO controls and Honda MCHP unit. The proper installation of these five components is required to have a completely operating system. Figures 1 & 2 show the preliminary piping and electrical schematic for the future Hydronic freewatt System.

Figure 1 - Hydronic Freewatt System Piping Diagram

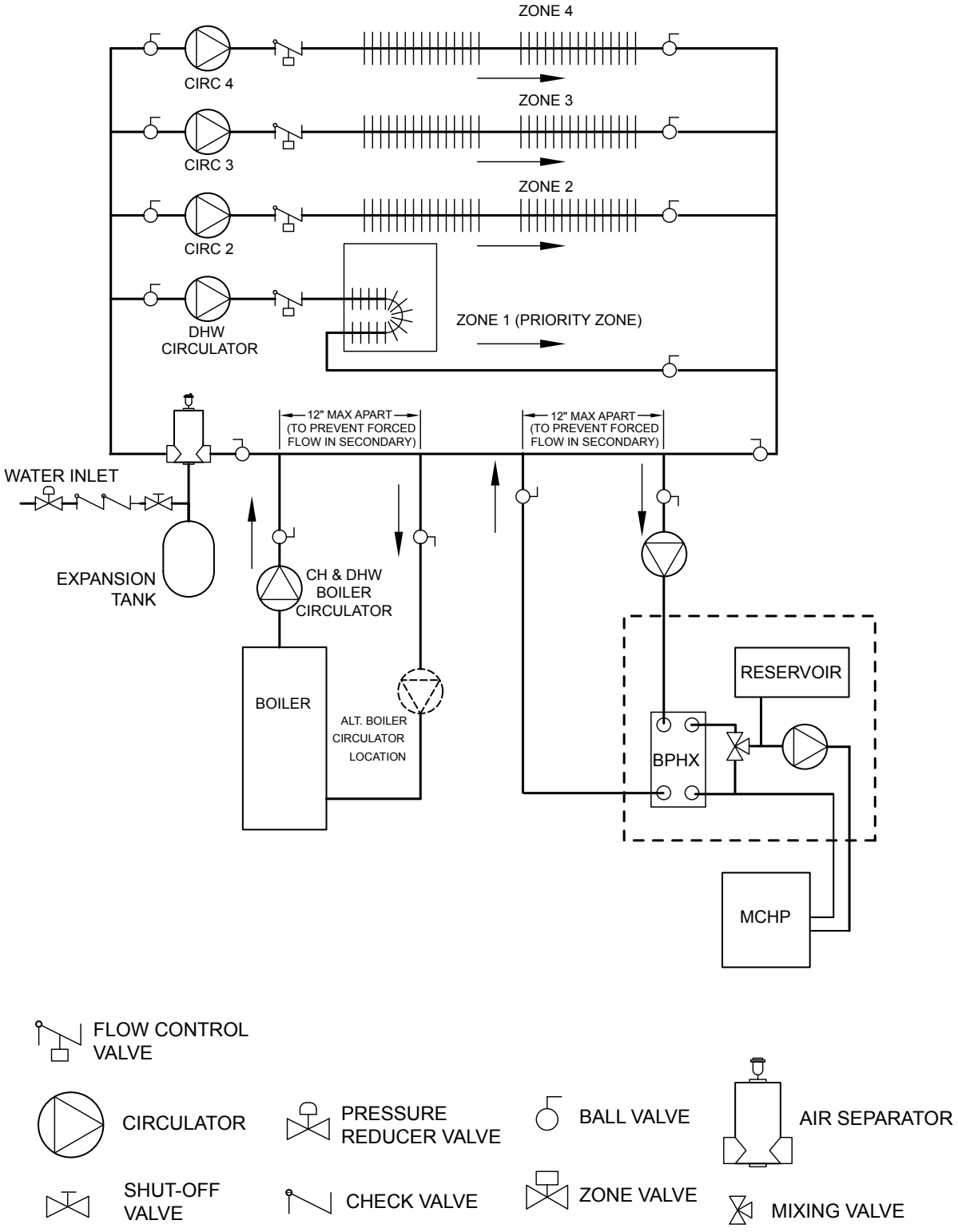
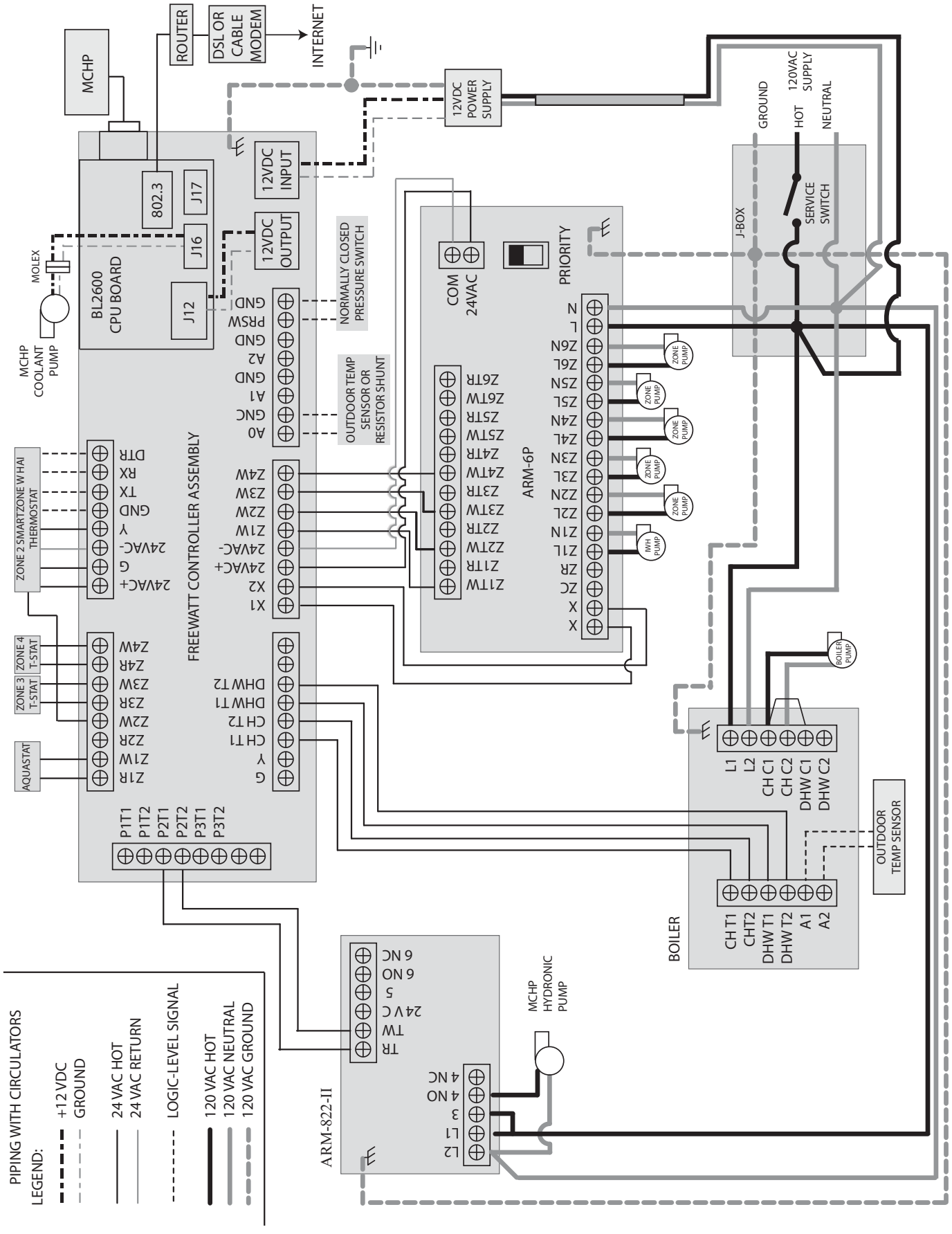


Figure 2 - Hydronic Freewatt System Electrical Schematic



5 - PREPARATION

Before installing the freewatt boiler, the following items must be in place:

1. Natural Gas to House
2. Electrical Panel
   - Boiler: 1 – 15 AMP 120VAC Breaker
   - Honda MCHP: 1 – 15 AMP 240VAC Breaker (FUTURE)
   - Outside Disconnect
3. Concrete Floor
4. Air Intake and Exhaust Piping Locations
   - Boiler – Direct Vent Guidelines
   - MCHP Non-Direct Guidelines
   - Concrete Coring Required?
5. Condensate Removal for Boiler and MCHP
6. Communicating Thermostat Location
   - Largest and/or most used zone preferred
   - 1st floor preferred for 10-conductor installation
7. Internet Connection
   - Speed?
   - Cable Connection
8. Asbestos removal?

6 - SCOPE OF SUPPLY

Freewatt Dealer

Freewatt Dealer's project scope includes the supply and installation of:

1. High-Efficiency, Condensing, Gas-Fired freewatt Boiler
2. ARGO Controls
   - **A.** ARM-6P Switching Relay (6 Zones w/ Priority)
   - **B.** ARM 822-II Switching Relay (Indirect DHW Pump Control & Signal to Boiler)
3. HAI Communicating Thermostat
   - **A.** 50 ft. Of 10-conductor cable supplied
4. Grundfos superbrute Circulators & flange sets
5. Miscellaneous System Components:
   - **A.** Pipe and Fittings (Hydronic, Gas, Air Intake/Vents)
     - **i.** Supply Manifold: scope ends at the downstream flange of the circulators
     - **ii.** Return Manifold: scope ends at the black iron shown in the piping configuration (others are responsible for manifolding the return legs of the distribution system)
   - **B.** Hydronic Components
     - **i.** Expansion Tank
     - **ii.** Air Separator & Air Vent
     - **iii.** Make-Up Water Components (if necessary)
     - **iv.** Ball Valves
     - **v.** Check Valves
     - **vi.** Etc.
   - **C.** Gas Piping & Fittings
     - **i.** Boiler piping and gas stop valve (up to 40 ft.)
     - **ii.** MCHP piping and gas stop valve (capped) (up to 40 ft.)
   - **D.** Air Intake/Exhaust Vent
     - **i.** Boiler – 3" PVC piping & supports
     - **ii.** MCHP – 2" PVC vent piping & supports (capped)
   - **E.** Electrical Components
     - **i.** 15 AMP 120 VAC Dedicated Circuit w/ breaker connected to Boiler w/ Service Switch
     - **ii.** 15 AMP 240 VAC Dedicated Circuit w/ breaker terminated at Boiler w/ Service Switch
   - **F.** Condensate Pump & Tubing
6. Optional Equipment: High Efficiency Indirect Hot Water Tank (50, 80 or 120 Gallon) with mixing valve.

Project scope does not include removal of existing boiler, installation of baseboard radiators, any asbestos removal, concrete coring or chimney liner charges unless specifically described in the quote.

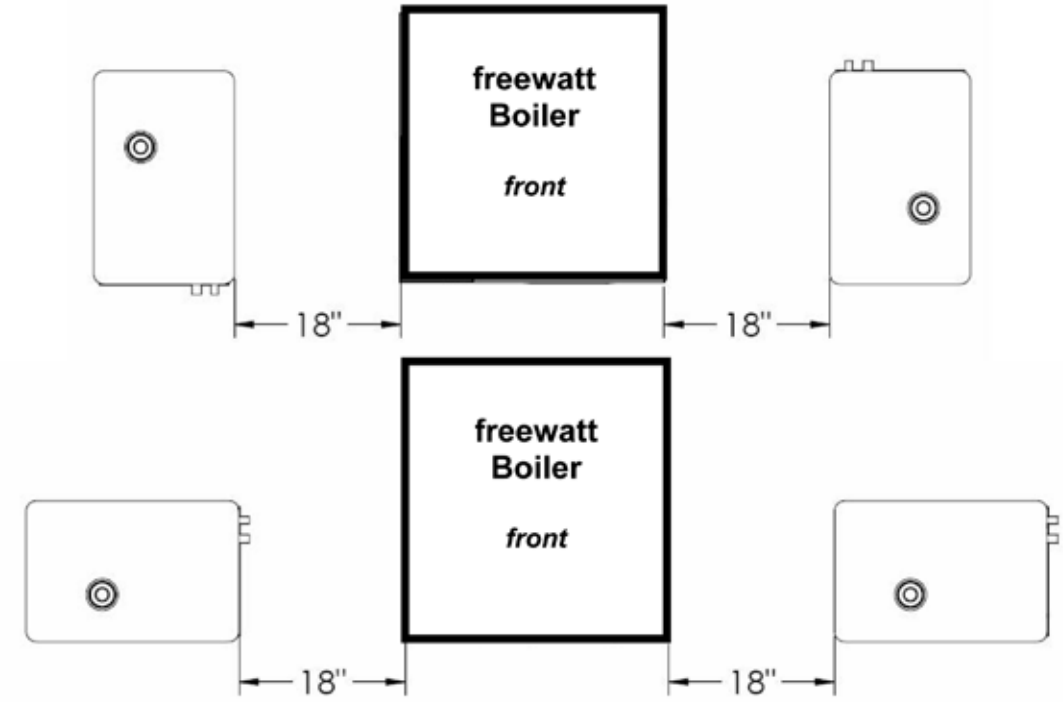
Freewatt's dealer will deliver this equipment and consult on site-specific installation concerns.

Boiler Location

The boiler location is important to the overall configuration of the Hydronic freewatt System and its components. Our typical configuration for the freewatt boiler and Honda MCHP unit are shown in Figure 3. This configuration allows the Integration Module to be mounted on the wall behind the MCHP near the hydronic piping or on the side of the Boiler. The major restrictions for this configuration are the length of coolant tubing that is supplied with the Hydronic freewatt System.

NOTICE Typical footprint should be a 8 ft. Wide by 4ft deep concrete floor. The height should accommodate the exhaust venting.
The front of the MCHP unit will require 20+ inches for future service clearance and the freewatt boiler will need about 24+ inches for future service clearance.

Figure 3 - Freewatt Boiler & MCHP Spacing



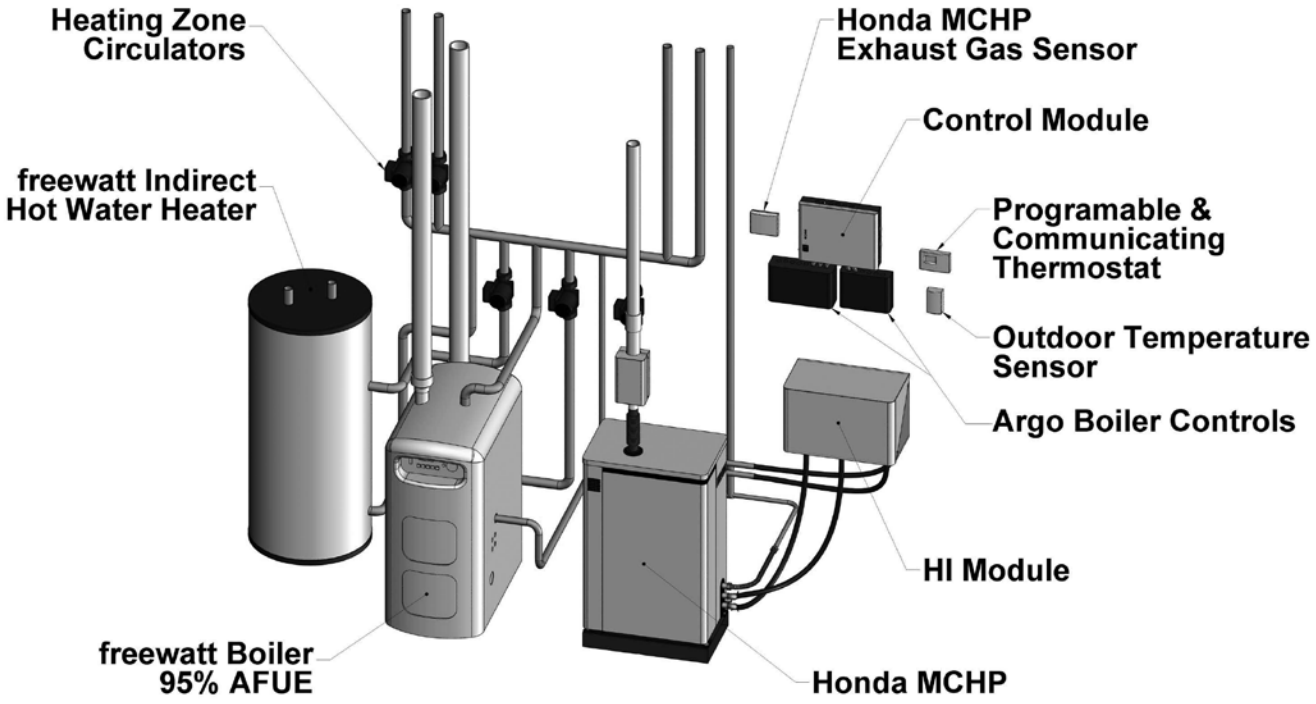
Hydronic HI Module Placement

It is suggested to leave a space open for the installation of the hydronic HI module in a location that is accessible for future servicing and maintenance. The two major requirements for this installation include:

- The module should be secured to a firm wall at a height of about 32" to 36" above the mounting surface of the Honda MCHP, which is generally the concrete floor.
- The module should be within 10 feet of the Honda MCHP.
- If the control module, ARGO switching relays and HI Module will be installed on the same wall, a 4 ft. By 4 ft. Plywood sheet can be used as a mounting location.

Typically, this can be accomplished by leaving space directly behind the Honda MCHP unit on the wall for this future installation. Figure 4 shows a Hydronic freewatt System installation and the typical location of the HI module.

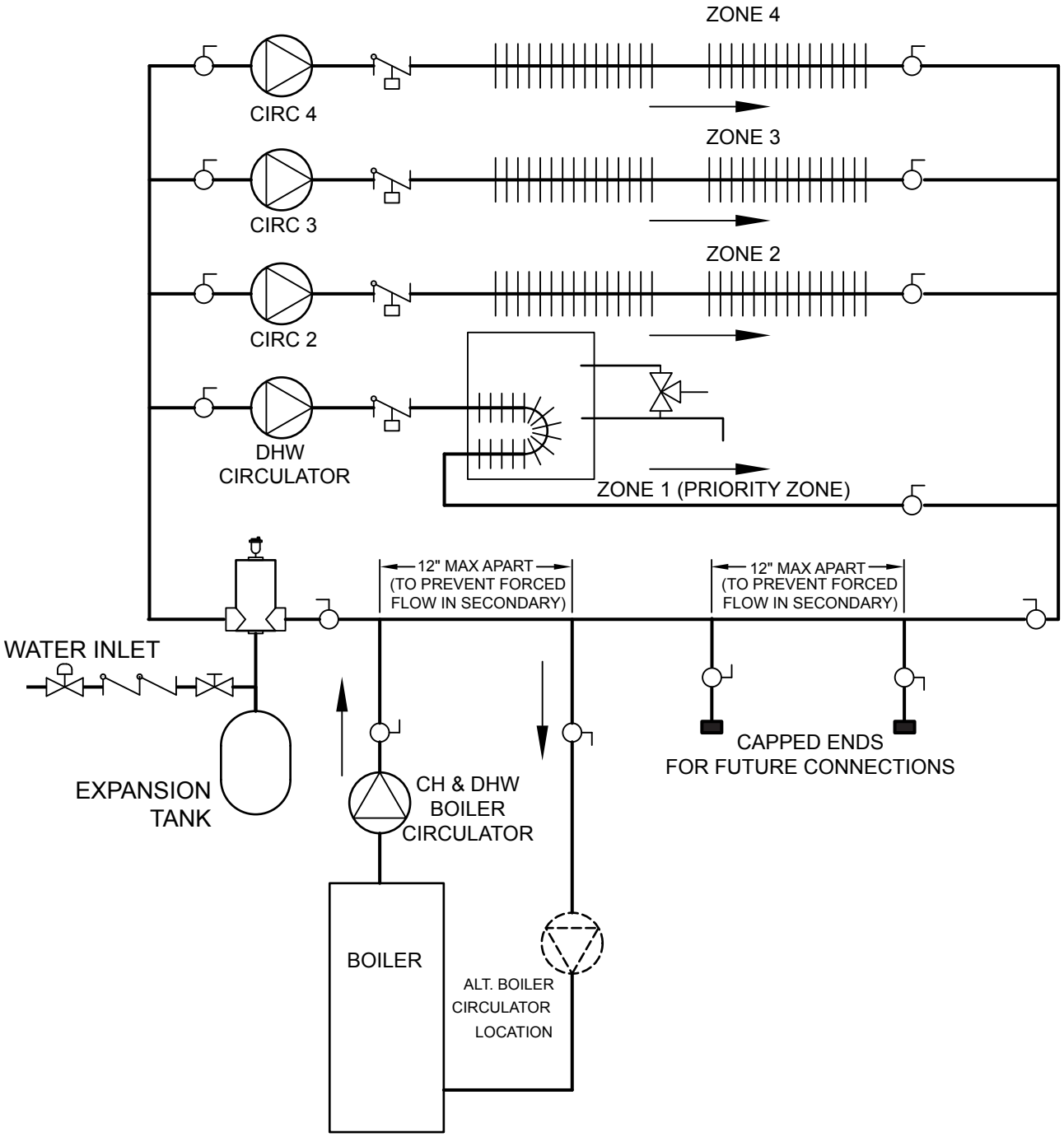
Figure 4 - System Components



Piping Configuration

It is suggested to use a Hybrid Primary-Secondary configuration to connect the boiler and Honda MCHP unit to the distribution system, as shown in Figure 1. However, for the freewatt-ready piping configuration, the connections for the Honda MCHP unit should be capped for future connection as shown in Figure 5.

Figure 5 - Hydronic Freewatt-Ready Piping Configuration

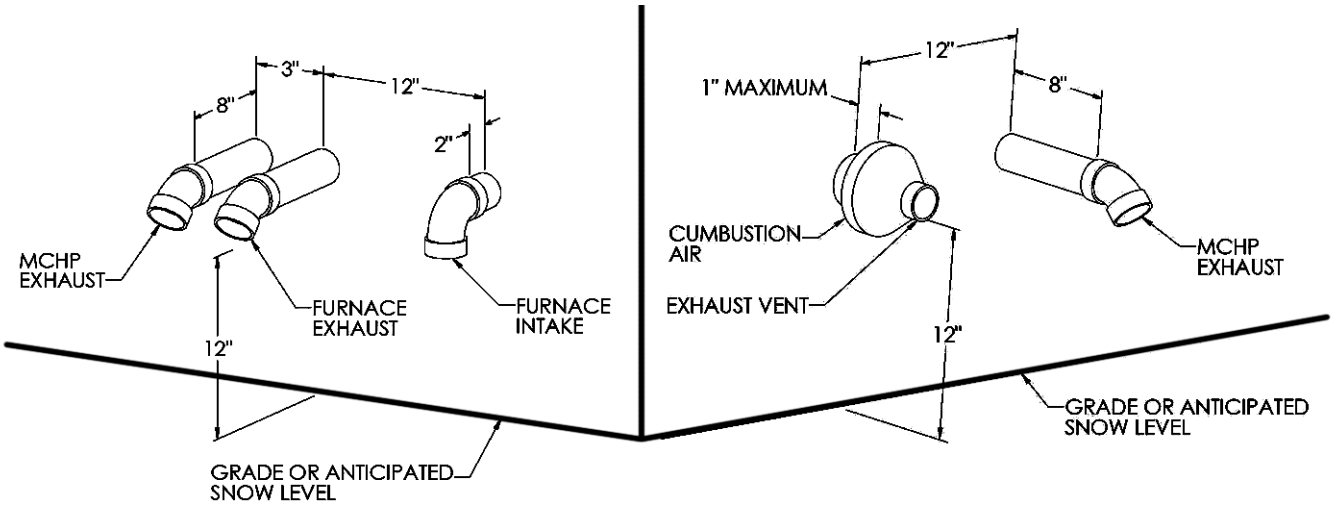


Freewatt System Combustion Air Intake & Vent Piping

Freewatt's recommended combustion air and venting installation procedures and specifications are based on the installation specifications of the boiler and Honda MCHP. Installers are required to follow the specific installation requirements found in the boiler and MCHP installation manuals and the following guidelines are taken from these manuals.

Please find below drawings showing the integrated system's combustion air and venting requirements for Sidewall and Vertical terminations:

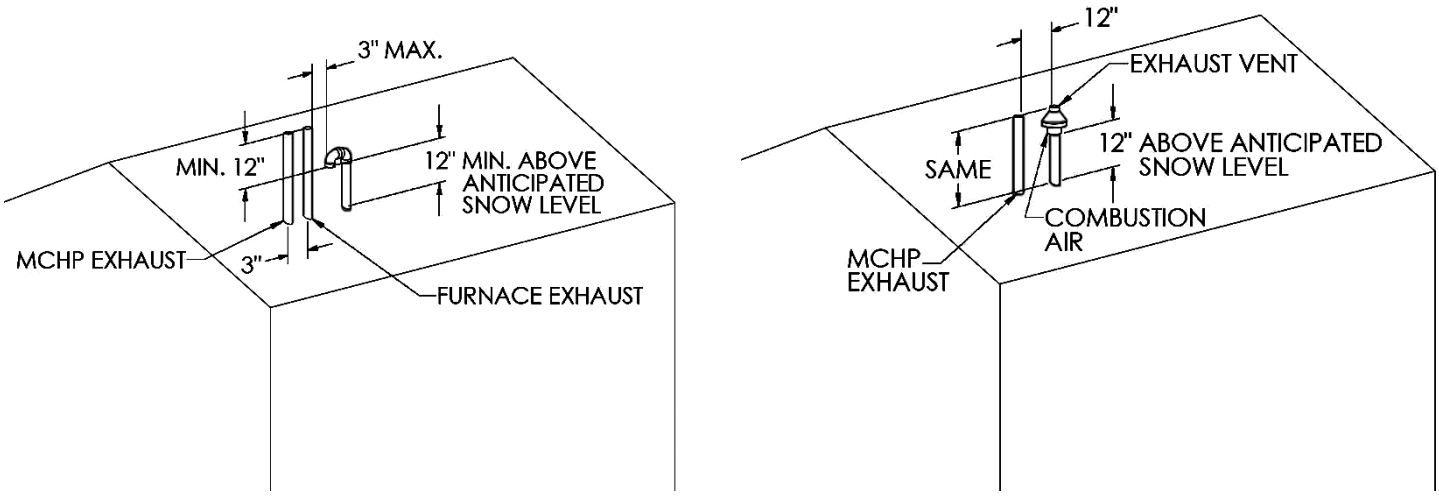
Figure 6 - Freewatt System Combustion Air & Venting Terminations - Sidewall



Typical Terminations

Concentric Terminations

Figure 7 - Freewatt System Combustion Air & Venting Terminations - Vertical



Typical Terminations

Concentric Terminations

Honda MCHP Vent Requirements

In addition to the general guidelines, **in the United States,** the non-direct vent exhaust for the MCHP shall be installed in accordance with the requirements found below:

- The clearance from the bottom of the termination to grade shall be 12" or increased to maintain 12" above the anticipated accumulated snow level.
- The vent shall not terminate over public walkways or over an area where condensate or vapor could create a nuisance of hazard.
- The vent termination shall be installed at least 4 feet below, 4 feet horizontally from, or 1 foot above any door, window, soffit, under eave vent or gravity air inlet to the building.
- The vent termination shall have a minimum horizontal clearance of 4 feet from electric meters, gas meters, regulators and relief equipment.
- Locate the vent terminal 3 feet horizontally from the vent of any side wall vented fuel gas appliance or electric clothes dryer, except in the case of our system or where two or more of these furnaces are multi-vented.

Non-Direct Vent: Maximum Allowable Length Of Exhaust Or Intake

Model	Pipe Size	# of 90 degree elbows						
		0	1	2	3	4	5	6
MCHP 1.0, YM2	1 1/2"	90	85	80	75	70	65	60
	2"	110	105	100	95	90	85	80

1. Count concentric vent fitting as straight pipe.
2. Use medium or long sweep elbows where possible.
3. One 90 degree elbow is equivalent to two 45 degree elbows.
4. For non direct vent, the length is for the exhaust.

Freewatt-Ready Electrical Component Configuration

The configuration and mounting orientation of the electrical components should be completed as shown in Figure 8 to ensure for a quick and trouble-free upgrade of the freewatt-ready system. The mounting area should be at least 2 ft. High by 3 ft. Long with an open area of about 1 ft. High by 2 ft. Wide above the ARM-6P. The thermostat and aquastat wiring will need to be rerouted to the freewatt control module and then connected back to the ARM-6P switching relay. It is recommended to install 2-4 ft. Service loops into the thermostat and aquastat cables directly upstream of the ARM-6P and AD-4 terminations. These service loops will allow for easy rerouting of the cables to the freewatt control module.

Future Modifications To The Electrical Components

1. Installation of the freewatt Control Module

The freewatt control module will be installed between the aquastat and thermostats and the ARM-6P and AD-4. This will allow the controller to monitor and control where the heat is delivered, specifically in MCHP mode.

2. Installation of the ARM-861-2II

This dual switching relay will be installed to control the MCHP coolant pump and the MCHP hydronic pump and will be wired from the freewatt control module through the switching relay to the pumps.

3. Removal of the ARM 822-II Switching Relay

This relay will be removed and its wiring will be rerouted. The Zone 1 Line and Neutral will be connected directly to the Indirect DHW Tank's circulator and other wiring will be installed to signal the boiler that the system is in DHW mode.

Figure 8 - Hydronic Freewatt-Ready System Electrical Components Configuration

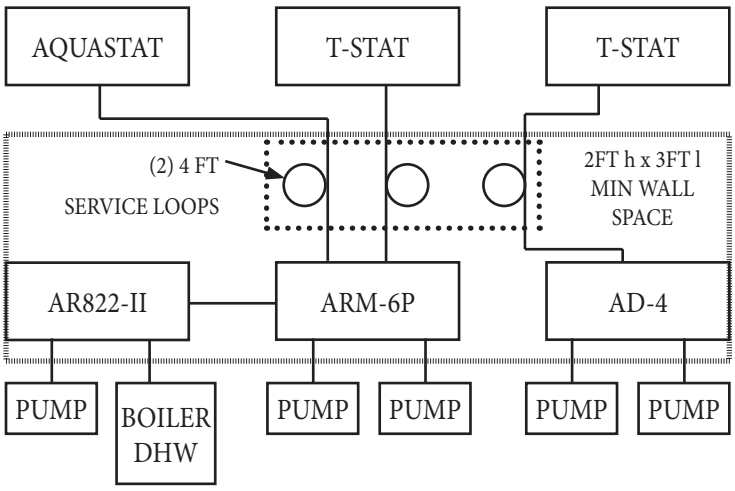
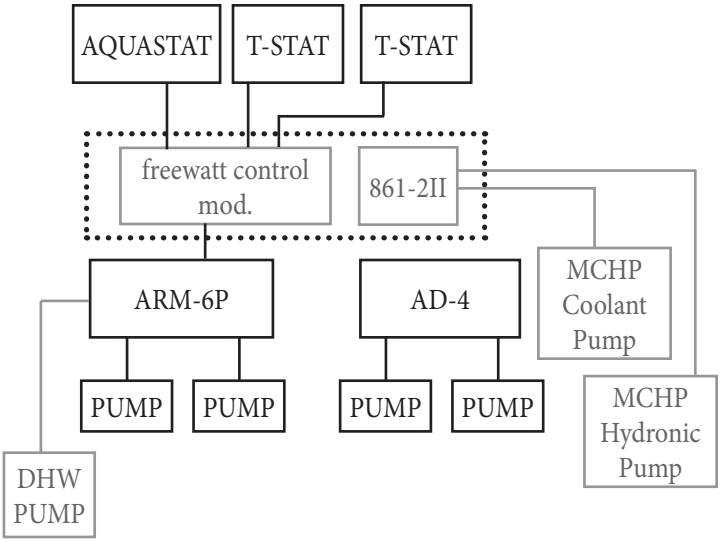


Figure 9 - Future Hydronic Freewatt-Ready System Electrical Components Configuration



The Hydronic freewatt–ready System provides homeowners with the ability to upgrade their high efficiency heating system to a freewatt system. The Hydronic freewatt System is completed by installing the control module, hybrid integration (HI) module and Honda MCHP unit. The full completion package for the Hydronic freewatt System package consists of the control module, HI module, Honda MCHP unit, installation kit, pressure switch system, outdoor temperature sensor and exhaust gas sensor. Read and understand these instructions as well as the Hydronic freewatt System and Honda MCHP instructions before attempting installation or operation of the system.

If the freewatt boiler was installed per the freewatt-ready instructions, the system should be ready for completion without major rework of the gas or piping systems. The HI module should be located within about 6 feet of the MCHP's installation location (Max. 10 feet of coolant tubing) and between 32" to 42" above the MCHP's mounting surface. The control module will be installed above the existing ARGO Controls ARM-6P and AR-822II relay switches. Please read and fully understand the requirements found in the Honda MCHP Manual and Hydronic freewatt System Manual before starting the installation.

The Hydronic freewatt System requires several commissioning steps to be fully functional, therefore be sure to complete the checklists found at the end of this document. Also, remember to complete all steps required by the local utility before interconnecting the system with the grid.

NEW EQUIPMENT INSTALLATION REQUIREMENTS

Hydronic Hi Module

- Mount: mount the hi module on a wall near the honda mchp with the top of the module 32" to 42" above the base of the MCHP.
- Coolant tubing: connect the coolant tubing from the hi module to the honda mchp following the freewatt System manual and honda MCHP manual.
- MCHP hydronic pump: connect the mchp hydronic pump to the manifold. Two taps should be available for this connection upstream of the boiler taps. Return water flows past mchp taps and the boiler taps and then to the heating zones.
- Hydronic tubing: connect the brazed plate heat exchanger to the hydronic loop.

System Controller

- Attach the system controller to the ARM-6P and AR 822II with a ½" offset conduit nipple.
- Mount the system controller to a wall above the ARM-6P and AR 822II. Use mounting screws installed in the mounting holes and level before firmly attaching to wall.
- Connect 120 VAC power to the power supply in the system controller. Make sure to properly ground the system controller.
- Internet Connection: Connect the system controller to a high speed internet connection

HONDA MCHP

- Base: Install base onto level concrete floor using supplied anchor bolts.
- MCHP Unit: Attach MCHP to the Base with the hardware included in the installation kit.
- Venting: Follow the vent requirements found in the freewatt System Manual and Honda MCHP Manual.
- Fuel Gas Piping: Follow the vent requirements found in the freewatt System Manual and Honda MCHP Manual.

NOTICE The honda MCHP requires a flexible gas connector (supplied with system).

- 240 VAC Power: Connect a dedicated 240 VAC circuit to the MCHP with a serviceman's switch (2-pole disconnect switch) near the Honda MCHP unit. The connection from the switch to the MCHP unit should use flexible metal conduit and should follow the Honda MCHP's Manual as well as NEC, state or local standards.
- Honda MCHP Exhaust Gas Leak Sensor: Install the Macurco CM-16 sensor 5 feet away from any Fuel Gas combustible appliance and at a height of at least 5 feet from the floor. Follow manufacturer's directions.
- Pressure Switch Assembly: Install according to guidelines found in the freewatt System Manual and Honda
- MCHP Manual. Install flexible exhaust adapter according to requirements.
- MCHP Coolant Tubing: Install coolant tubing per the manual's requirements.
- Condensate Tubing: Install the condensate tee and tubing and terminate at a condensate pump or drain.

Low Voltage Wiring

- 12VDC Wiring: All 12 VDC cables are factory-supplied for the installation of the Hydronic freewatt System. If additional cable is required, the cable must have 18 AWG stranded copper conductors and should not be extended more than 10 ft.
- 24 VAC Wiring: Thermostat, outdoor temperature sensor and pressure switch system wiring should follow the manufacturer's requirements.
- HAI Communicating Thermostat Wiring: Honeywell Genesis Series Cable; Model Number 22 AWG 10/C STR CM-CL2 (or equal) is specified for wiring the HAI Thermostat to the freewatt system controller. This cable is a 22 AWG, 10-conductor, stranded PVC polypropylene-insulated, PVC-jacketed cable and meets UL standards 13 & 144; NEC Article 725.

High Voltage Wiring

- 240 VAC Wiring: All wiring must conform to National Electric Code and any other national, state or local code requirements. Wiring must be N.E.C. Class 1. In Canada, C.S.A. C22.1 Canadian Electrical Code Part 1 and any other national, provincial or local code requirements must be followed. Wiring must be C.S.A. C22.1 C.E.C. Part 1.
- 120 VAC Wiring: All wiring must conform to National Electric Code and any other national, state or local code requirements. Wiring must be N.E.C. Class 1. In Canada, C.S.A. C22.1 Canadian Electrical Code Part 1 and any other national, provincial or local code requirements must be followed. Wiring must be C.S.A. C22.1 C.E.C. Part 1.

⚠ WARNING For your safety, turn off electrical power supply at service panel before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.

ARM-6P To System Controller

1. Disconnect the HAI thermostat wire from the ARM-6P and wire it to the top of the system controller. See Figure 2 in this publication or in the Hydronic freewatt System Manual.
2. Disconnect the additional thermostats from the ARM-6P. Add thermostats to the top of the system controller per Figure 2 in this manual or in the Hydronic freewatt System Manual. Z3R-Z3W-Z4R-Z4W.
3. Disconnect the Aquastat from the ARM-6P and wire it to the top left of the system controller Z1R and Z1W.
4. Thermostats for Zones 5 and greater can remain connected to ARGO controls. This completes the thermostats and Aquastat.
5. Connect thermostat wire between X and X on the bottom left of the ARM-6P to the X1 and X2 of the system controller. Also connect Z1TW to Z1W and Z2TW to Z2W and Z3TW to Z3W and Z4TW to Z4W.

ARM-6P	System Controller
Z1TW	Z1W
Z2TW	Z2W
Z3TW	Z3W
Z4TW	Z4W
COM	24VAC-
24VAC	24VAC+
X	X1
X	X2

AR-822II To System Controller

1. Take jumper off of TR and TW.
2. Run Thermostat wire from TR to P2T1.
3. Run Thermostat wire from TW to P2T2.
4. Disconnect L1, L2 and 4-NO inside the AR-822II.
5. Wire Nut the DHW Pump and the TT connections from the ARM-6P together (power from ARM-6P directly to DHW Pump)
6. Run a 14-2 MC cable from the MCHP Hydronic Pump to the ARM-822II and land on terminals L2 and 4 NO.
7. Run a 120 VAC feed to the ARM 822II (L1, L2) from the 120 VAC junction box.

AR-822II	System Controller
TR	P2T1
TW	P2T2

Boiler To System Controller (Sc)

- Boiler CH T1, run thermostat wire to SC CH T1.
- Boiler CH T2, run thermostat wire to SC CH T2.
- Boiler DHW T1, run thermostat wire to SC DHW T1.
- Boiler DHW T2, run thermostat wire to SC DHW T2.
- 120 VAC remains the same.

Boiler	System Controller
CH T1	CH T1
CH T2	CH T2
DHW T1	DHW T1
DHW T2	DHW T2
A1	OTSB
A2	OTSB

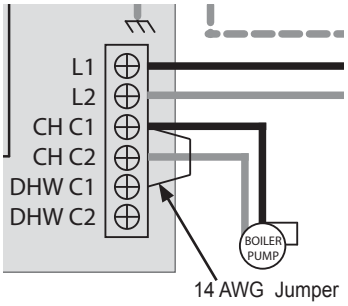
*OTSB = Outdoor Temperature Sensor of Boiler

Freewatt System Controller (SC)

1. Outdoor Temperature Sensor: Run a two-conductor wire from the SC to the North Side of the house. Terminate on the bottom of the SC on the AO and GND terminals.
2. Pressure Switch: Run the wire connected to the pressure switch assembly to the bottom of the SC and terminate on PRSW and GND.
3. Honda MCHP Data Cable: This cable needs to be connected from the SC to the Honda MCHP per the Manual.
4. Honda MCHP Exhaust Gas Leak Sensor: The Macurco CM-15 sensor must be installed at least 5 feet away from any Fuel Gas combustible appliance. Run cable from sensor to Honda MCHP Unit.
5. MCHP Coolant Pump: Run a two-conductor low voltage cable from the HI module to the SC. Connect to the Black and Red wires in the SC.

Boiler Jumper

The boiler will require a jumper wire (Minimum 14 AWG) between the CH C1 and DHW C1 terminals on the boiler. If this jumper is not installed, the Call of Central Heat may not energize the boiler pump.



Boiler Parameter Configuration

The freewatt boiler's factory-set boiler control parameters are satisfactory for most applications, but some critical parameters will need to be field-modified to maximize the benefits of the freewatt system.

Parameter/Description		Gascom	Display	Field Modification
1	T3 Set DHW	150°F	150	120
4	T1 Top CH-Mode	180°F	180	160

The procedure for changing these parameters is found in the FW95M-200 Parameter Guide.

Boiler Checkout And Adjustments

The boiler should be checked and adjusted per the Control Manual and Operating Adjustments supplied with the boiler. The boiler adjustment procedure is found on page 12 and 13 of this manual and is required to have a properly commissioned boiler.

System Controller Jumper Settings

The system controller has a jumper for Zone 1 being a heat zone or a Domestic Hot Water (DHW) zone. If Zone 1 is connected to an Aquastat in an indirect water tank, the jumper should be installed on the DHW pins. If Zone 1 is connected to a thermostat for space heating, the jumper should be installed on the HEAT pins.

Thermostat Settings

Check the HAI thermostat to ensure that the MODE is in

HEAT or AUTO. If the MODE is not in either of these settings, the power production of the Hydronic freewatt System will not be optimized. Also, the thermostat settings can only be set when the thermostat is in HEAT, COOL or AUTO mode.

NO Setback. Set it, forget it and SAVE!

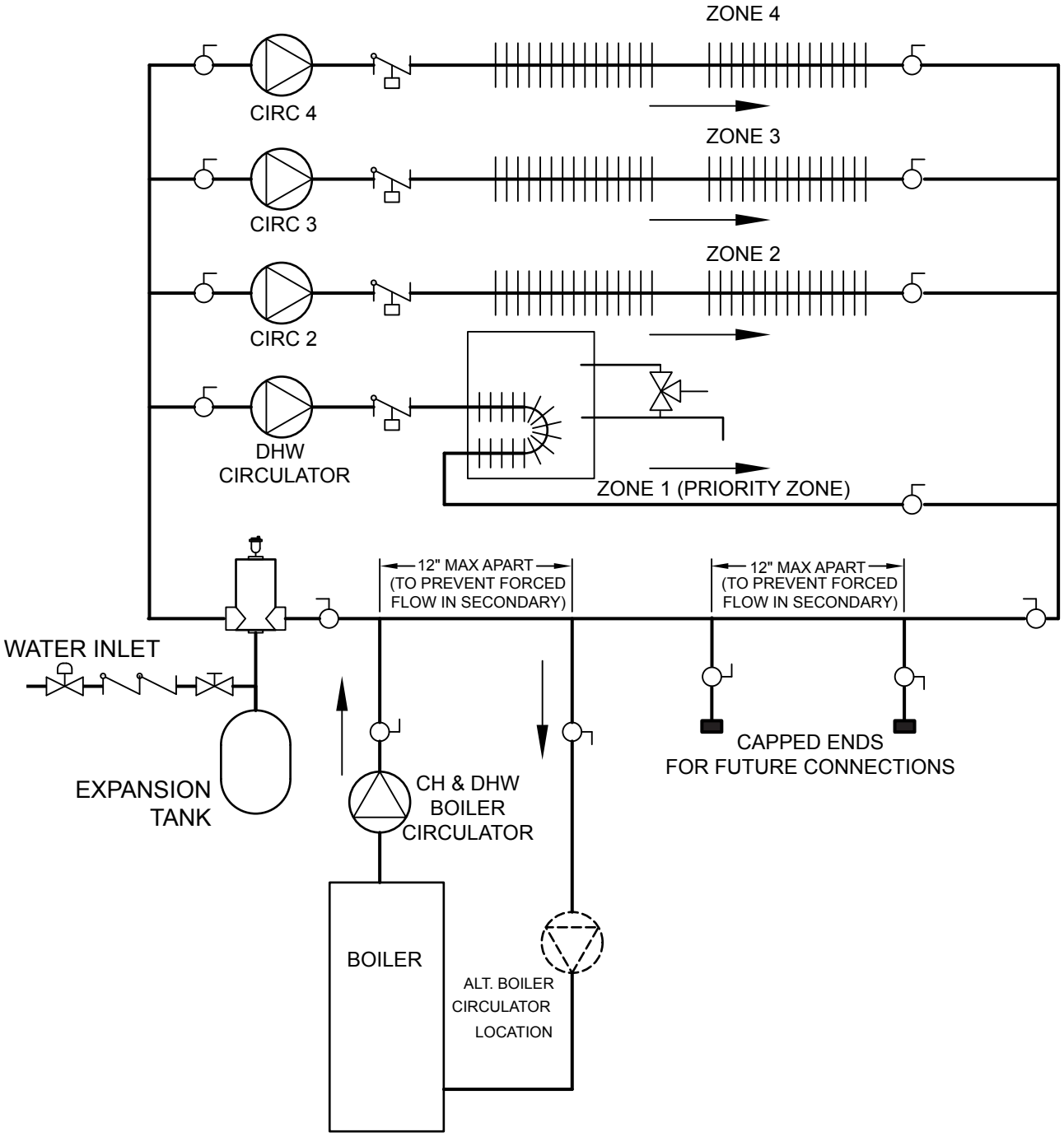
Indirect Water Tank Aquastat Settings

Check the Aquastat setting is between 120 - 125°F. This will prevent short-cycling of the Honda MCHP.

Circulator System - Argo ARM-6P Dipswitch Settings

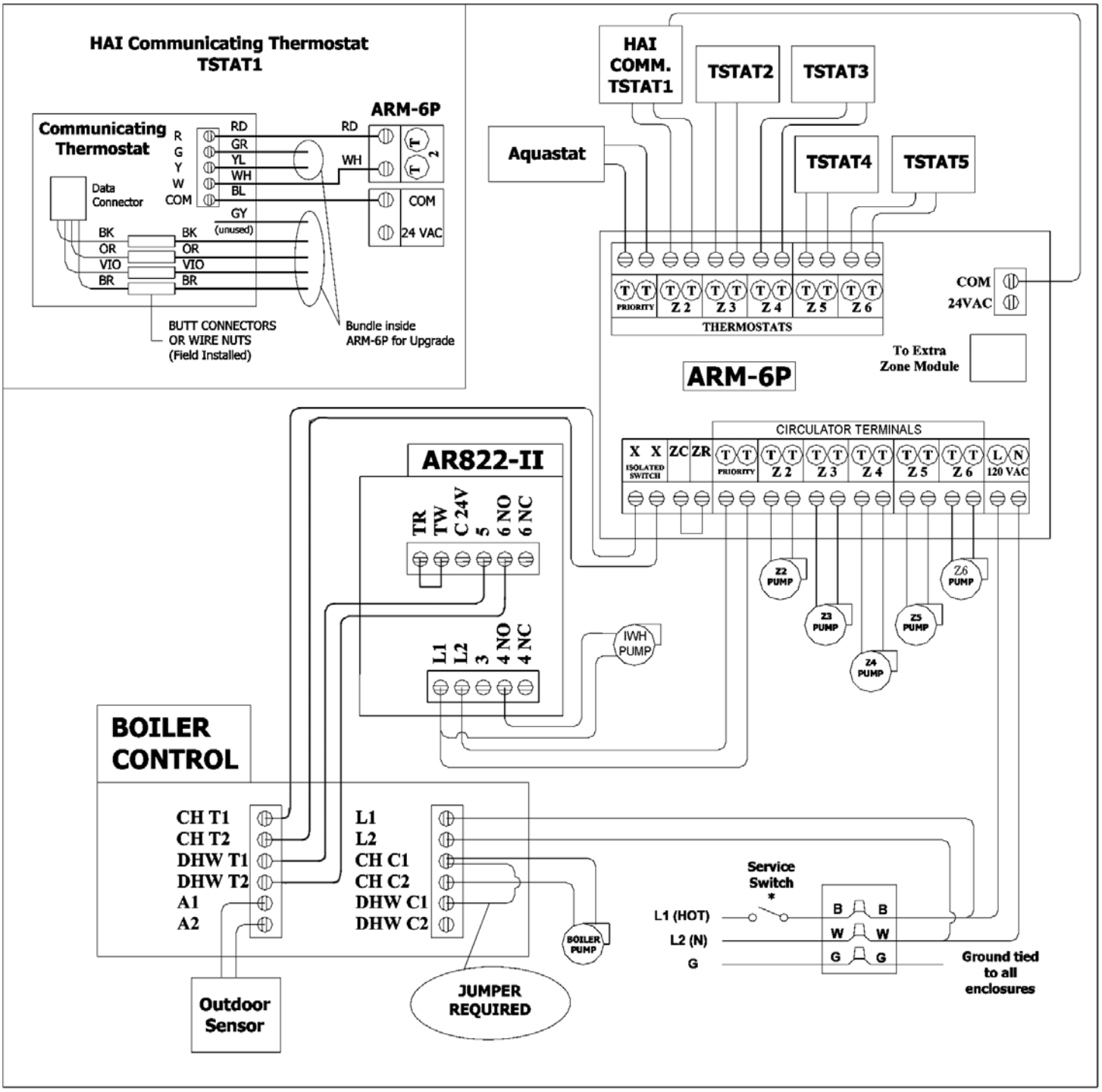
PRIORITY: When the freewatt system includes an indirect hot water tank, the ARGO ARM-6P should be configured for Domestic Hot Water (DHW) Priority. This will required the Priority Switch to be placed into the ON position.

Appendix A – freewatt-Ready Piping Diagram

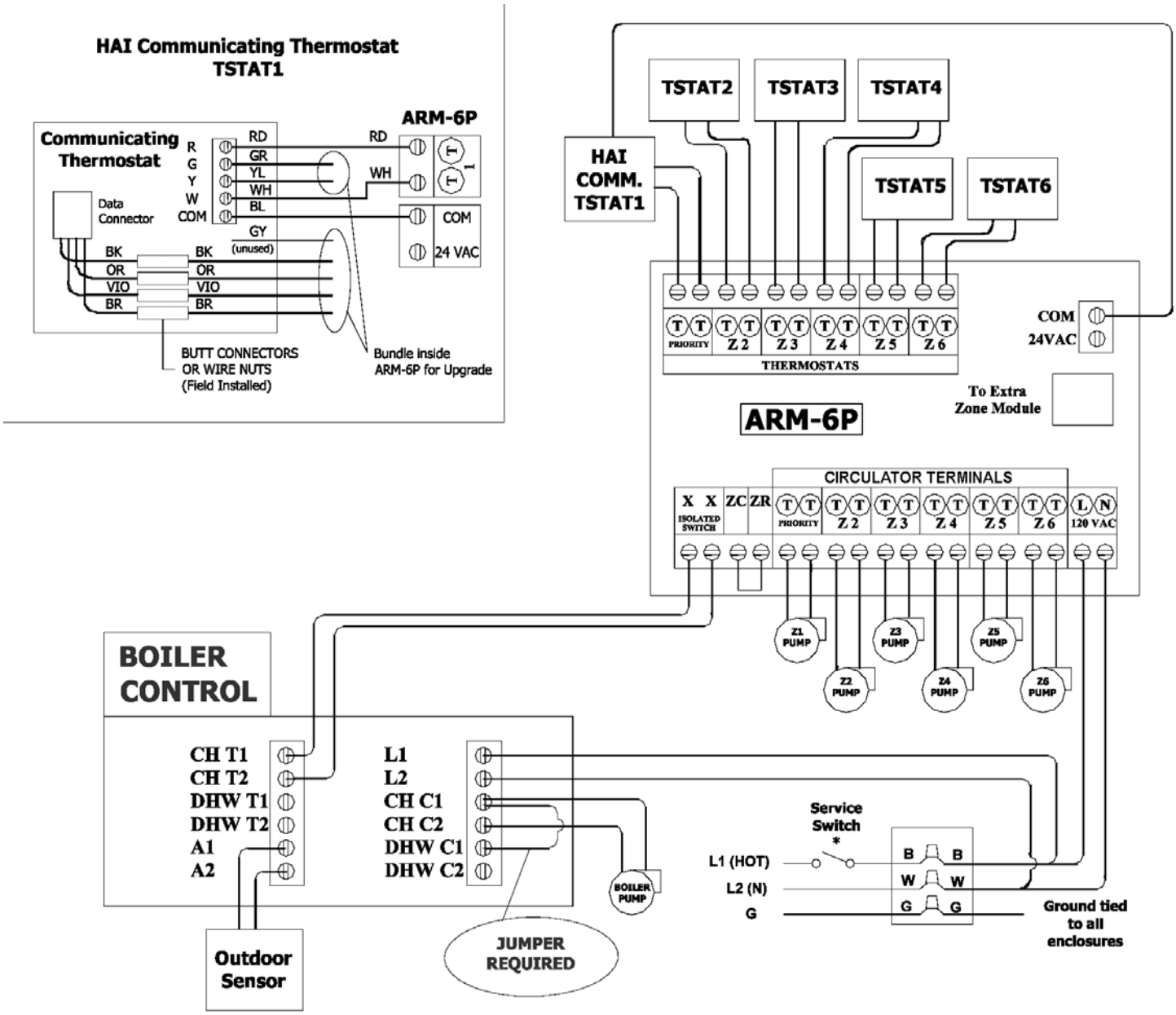


Appendix B – freewatt-Ready Electrical Schematic:1-5 Zones With Indirect HW Tank

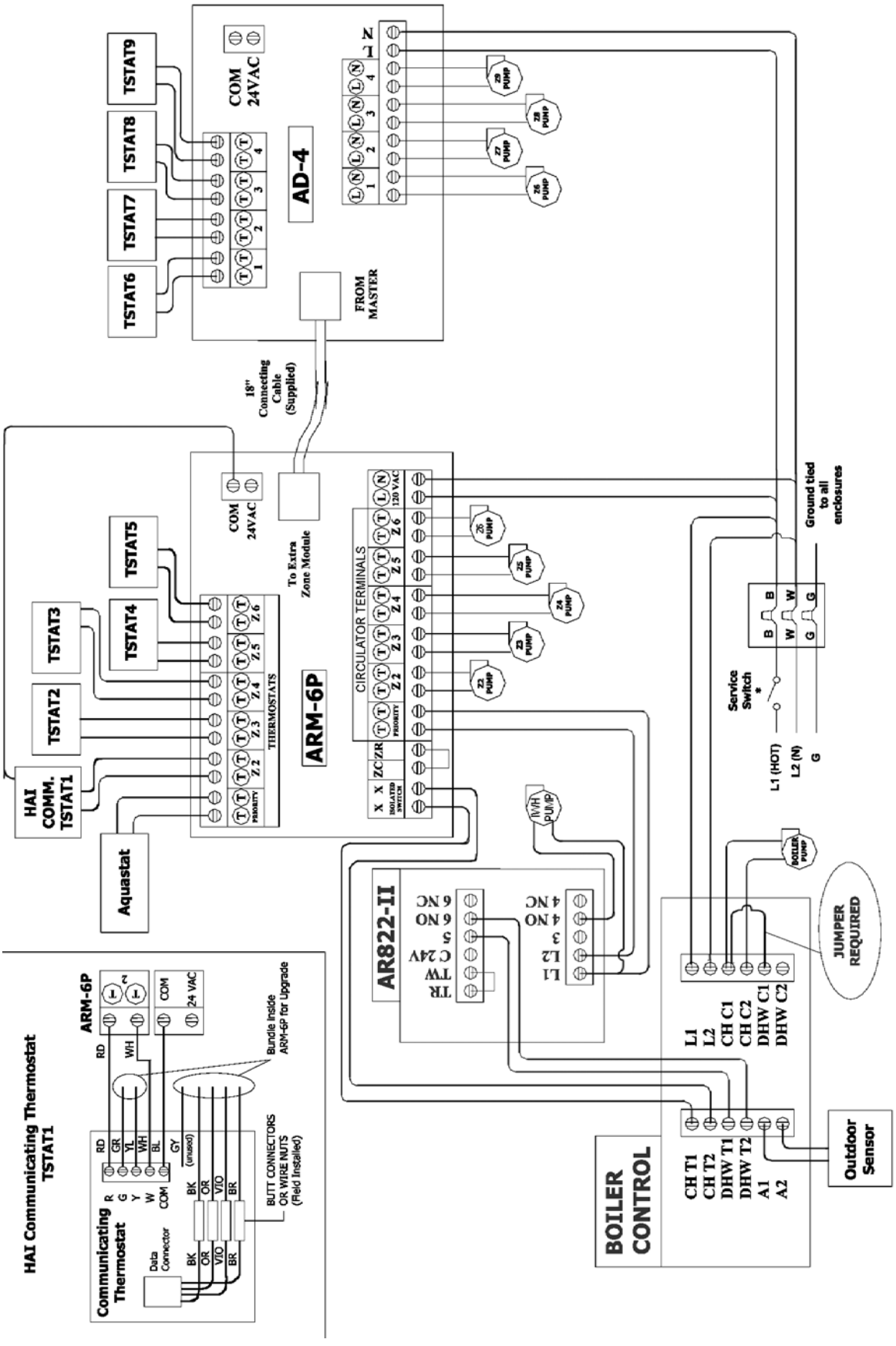
The following electrical schematics show the wiring for the freewatt-ready Boiler and Indirect Hot Water Tank installation. The schematic includes the boiler control, HAI communicating thermostat, indirect hot water tank's aquastat, ARM-4P switching relay and AD-4 Expansion Module.



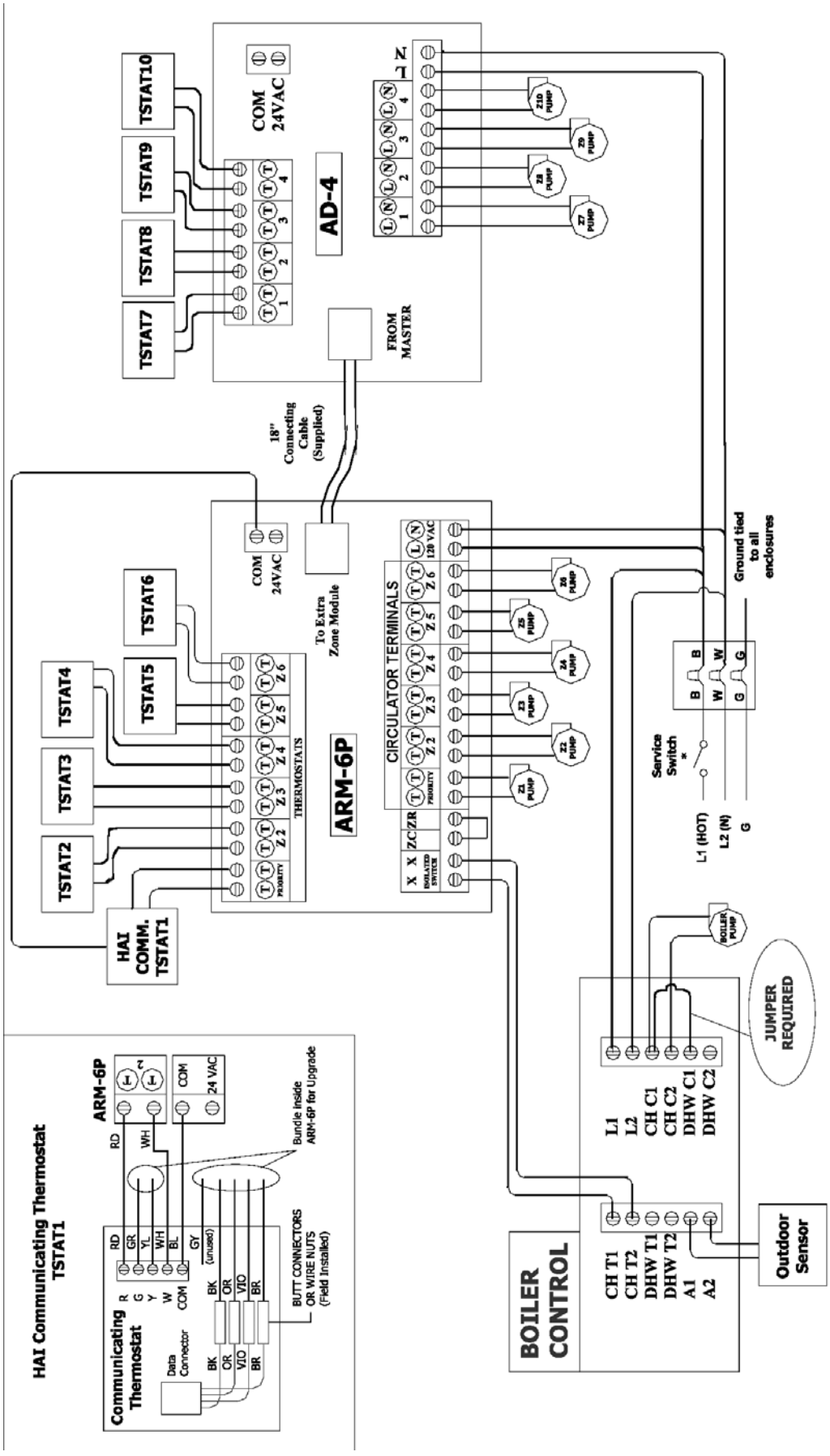
Appendix C – freewatt-Ready Electrical Schematic: 1-5 Zones Without Indirect HW Tank



Appendix D – freewatt-Ready Electrical Schematic: 6-9 Zones With Indirect HW Tank



Appendix E – freewatt-Ready Electrical Schematic: 6-9 Zones Without Indirect HW Tank



Appendix F – Freewatt Ready Boiler Planning Checklist

PLUMBING & GAS

Ensure the following items are performed		
Check Item	Description	Check
Gas Piping	Size piping for 220 MBH firing rate to accommodate future installation of Honda MCHP. ½" NPT female tap for the Honda MCHP gas line should be plugged & ready for future upgrade	
MCHP Vent Pipe	Install 2" PVC vent pipe per manual	
Return Manifold Taps	Honda MCHP needs two – ½" taps (w/ ball valves & caps) within 12" of each other for the supply/return for the HI module.	
Indirect Hot Water Tank	Mixing Valve is required on potable water supply.	
Hydronic HI Module	Installed within 10 ft. Of MCHP (24" W x 18"H) about 32" to 36" above MCHP mounting surface.	

ELECTRICAL

Ensure the following items are performed		
Check Item	Description	Check
Future Control Module	Open space should be left above the switching relays for the system controller and connections.	
Service Loops	The thermostat cables should have 2 – 4 ft. Service loops just above the ARM-6P in order to facilitate the future installation of the system controller	
Boiler's Jumper	The terminal strip on the boiler's controller requires a jumper to be placed between the CH C1 terminal and the DHW C1 terminal.	
HAI Communicating Thermostat	The common terminal on the HAI communicating thermostat should be connected to the common terminal on the ARM-6P with the Blue wire in the 10-conductor cable. The other unused wires should be bundled in the ARM 6-P (At least 4 ft. Extra wire).	
Outdoor Temperature Sensors	The boiler has its own Honeywell outdoor temperature sensor that connects to the boiler control at terminals A1 and A2 for its outdoor reset programming. Please install a second two-wire outdoor temperature sensor cable for the system controller's outdoor temperature sensor (Tekmar) for future connection.	

Appendix G – Freewatt Ready Circulation System Completion Planning Checklist

Follow the Installation Instructions found in the Hydronic freewatt System Manual (HDZ), Honda MCHP Manual and ensure that the following items are performed:

PLUMBING & GAS

Check Item	Description	Check
Honda MCHP	Install per Honda MCHP Manual and Hydronic freewatt System (HDZ) Manual	
HI Module	Install HI Module per System Manual	
MCHP Coolant Tubing	Install per Honda MCHP Manual and Hydronic freewatt System (HDZ) Manual	
Gas Piping	½" NPT female tap for the Honda MCHP gas line should be extended & connected to the MCHP using the supplied gas connector	
MCHP Vent Pipe	Install per Honda MCHP Manual and Hydronic freewatt System (HDZ) Manual	
Pressure Switch Assembly	Install per Hydronic freewatt System (HDZ) Manual (For YM2Z – Standard MCHP unit only)	
Condensate Pump	Install per manufacturer's instructions and Hydronic freewatt System (HDZ) Manual	
Start-Up Procedures	Perform per Honda MCHP Manual and Hydronic freewatt System (HDZ) Manual	
Commissioning	Perform per Honda MCHP Manual and Hydronic freewatt System (HDZ) Manual	

ELECTRICAL

Check Item	Description	Check
MCHP (240 VAC)	240 VAC Dedicated circuit connected to Honda MCHP per Manual	
Control Module (120 VAC)	120 VAC Dedicated circuit connected to HI module per Manual	
Hydronic HI Module (24 VDC)	24 VDC circuit connected to Hydronic HI Module per Manual	
HAI Communicating Thermostat	The HAI communicating thermostat should be connected to the system controller. The furnace communication cable should be then be rerouted to the furnace's controller and connected per the instructions in the Manual	
Thermostats	All thermostats that are connected to the control module should be digital (no mercury switch units) and landed to proper zone	
Exhaust Gas Sensor	Install and connect per freewatt system and Honda Manual	
Pressure Switch Assembly	Connect per Manual	
Outdoor Temperature Sensor / Internet Connection & MCHP Communication Cable	Connect per manufacturer's instructions & Manual	