Eco Logic

Energy Efficient Home Heating

Combi - Tank®

Installation Guide

2021/ 10

Energy efficient heating solutions : Designed and developed for New Zealand homes, by Heat IQ

Eco+Logic®
Combi - Tank®

Energy efficient Air to Water home heating systems, developed by *Heat IQ* for New Zealand homes.

Save more energy

Developed right here in New Zealand by Heat IQ Combi-tank® is designed to compliment our Eco+Logic Inverter heat pumps. However it's unique flexibility and energy saving features are fully compatible with almost any brand of Air to water heat pump.

Key features

Energy saving pre heater coil for DHW Utilizes High COP energy to DHW	✓
High performance Large surface area coil for HP HW heating	✓
PV Solar ready element port in DHW Cylinder for PV to DHW input	✓
PV solar ready element port in Buffer tank for PV to heating input	✓
230V element port in optimized HP controlled position	✓
Reticulated DHW return connection point	✓
System pressure vessel anchor Tab for on case mounting	✓
Space Saving Design Buffer and Cylinder in a 550mm diameter single shell	✓
Duplex Stainless Steel with additional Anode protection in DHW Cylinder	✓
Tight space installation with all connections XX° accessible.	✓
Wipe Clean color steel shell with feet	✓

DETAILS ON THE FOLLOWING PAGES ASSUME USE WITH Eco+Logic HEAT PUMP

System buffering

In the base is a buffer tank providing Hydraulic separation between the heat pump and the attached heating system. Providing controlled and consistent Flow rates across the Heat pump for peak efficiency, the buffer also stabilizes demand, minimizing potential for short cycling of the HP compressor, to further enhance efficiency. The buffer is sized to ensure there is sufficient volume of water for a short and energy efficient defrost cycle.
(*Defrost is part a HPs normal operating process, miss managed it can be energy inefficient).*

Pre heated domestic hot Water

Within the buffer tank is a coil specially designed to provide pre heating of the domestic hot water cylinder input. This pre heating coil utilizes heat energy from the Higher COP, low temperature HP input to the buffer tank body water. Contributing to the hot water heating system the pre heater reduces the cost of heating domestic hot water when the heating system is operational by up to 15% compared to a conventional HP to direct diversion to DHW cylinder coil system where heat input is at a lower COP.

Taking in the sun

Combi-Tank® is configured to allow both the heating and Hot water system to benefit from Solar PV (power) input. Dedicated PV element ports are provided in both the DHW cylinder and the buffer tank.

Fully managed hot water

Used with **an** Eco+Logic HP's integrated hot water management system to achieve the best possible combined heat and hot water performance. The Eco+Logic system gives you complete control over DHW production including reticulation if required.

Smart and safe

Unlike some other HP systems Eco+Logic HPs fully manage Legionella protection of DHW with controlled , efficient and Safe dedicated scheduled programing.

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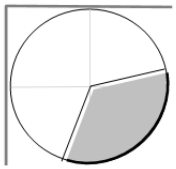
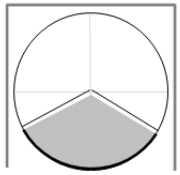
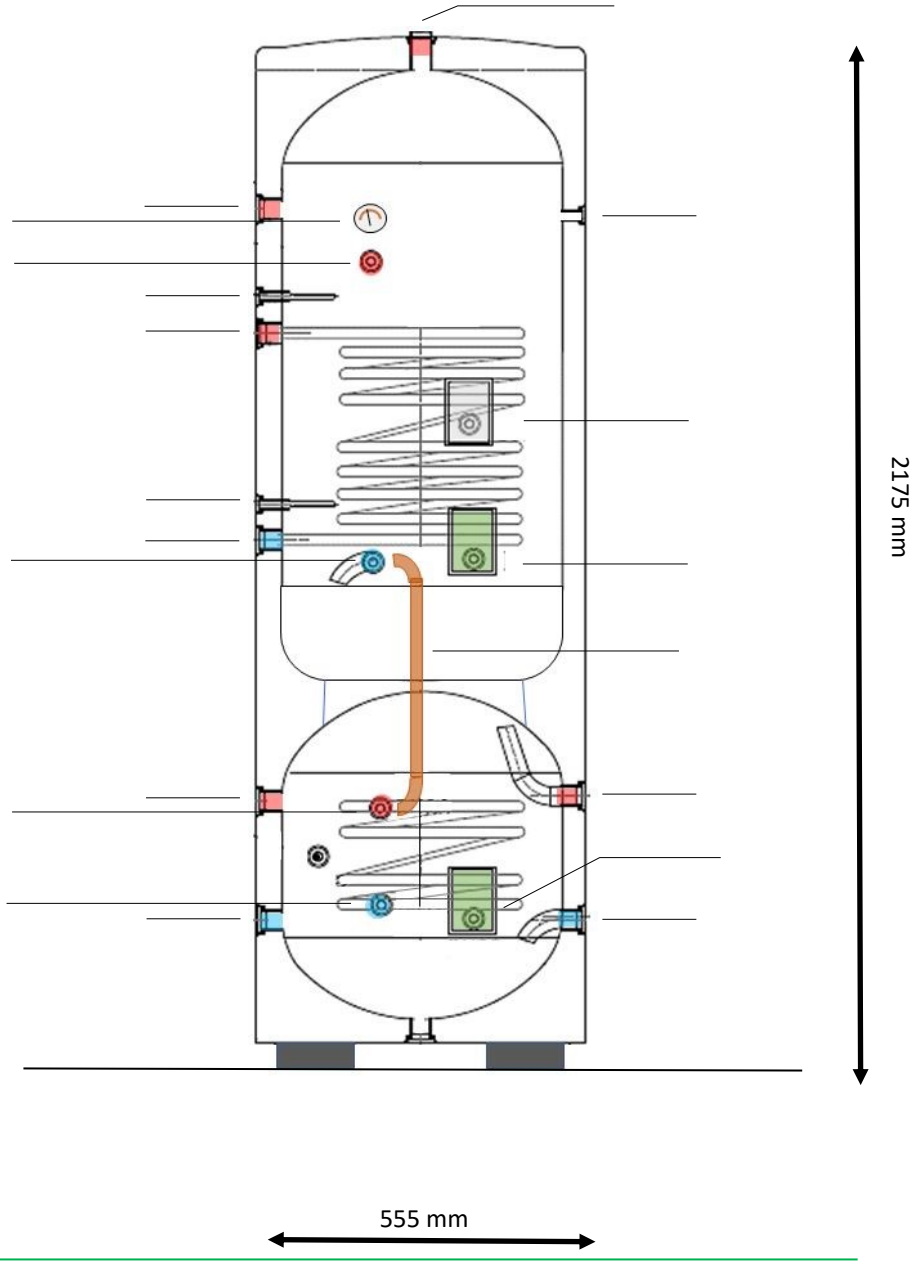
DHW CYLINDER			BUFFER TANK	
Construction	Duplex SS		Construction	Duplex SS
Capacity	250L		Capacity	70L
Input Coil DHW	25mm OD 26M		Pre Heating coil*	25mm OD 6m
Hot & Cold ports	3/4" BSP Female		Coil connections	1"BSP Female
Reticulation Return,	1/2" BSP Female		Buffer ports	1" BSP Female
TPR port	1/2" BSP Female		Element Port PV	1 1/4" BSP X1
Element Ports PV	1 1/4" BSP X1		Insulation	50mm PU
Element Port 230v,	1 1/4" BSP X1		Probe pockets	X 1
Probe pockets	X 2		Anode	N/A
Anode	Included		Sludge Drain	Included
Insulation	50mm PU in Shell		Insulation	50mm PU in Shell
Overall outer case dimensions . 2175 mm x 550 Diameter . Including feat				
Pre heat coil may alternatively used as an input source				



Pipe and element connections fall within a Radius allowing installation in tight cupboards and corners



Dimensions



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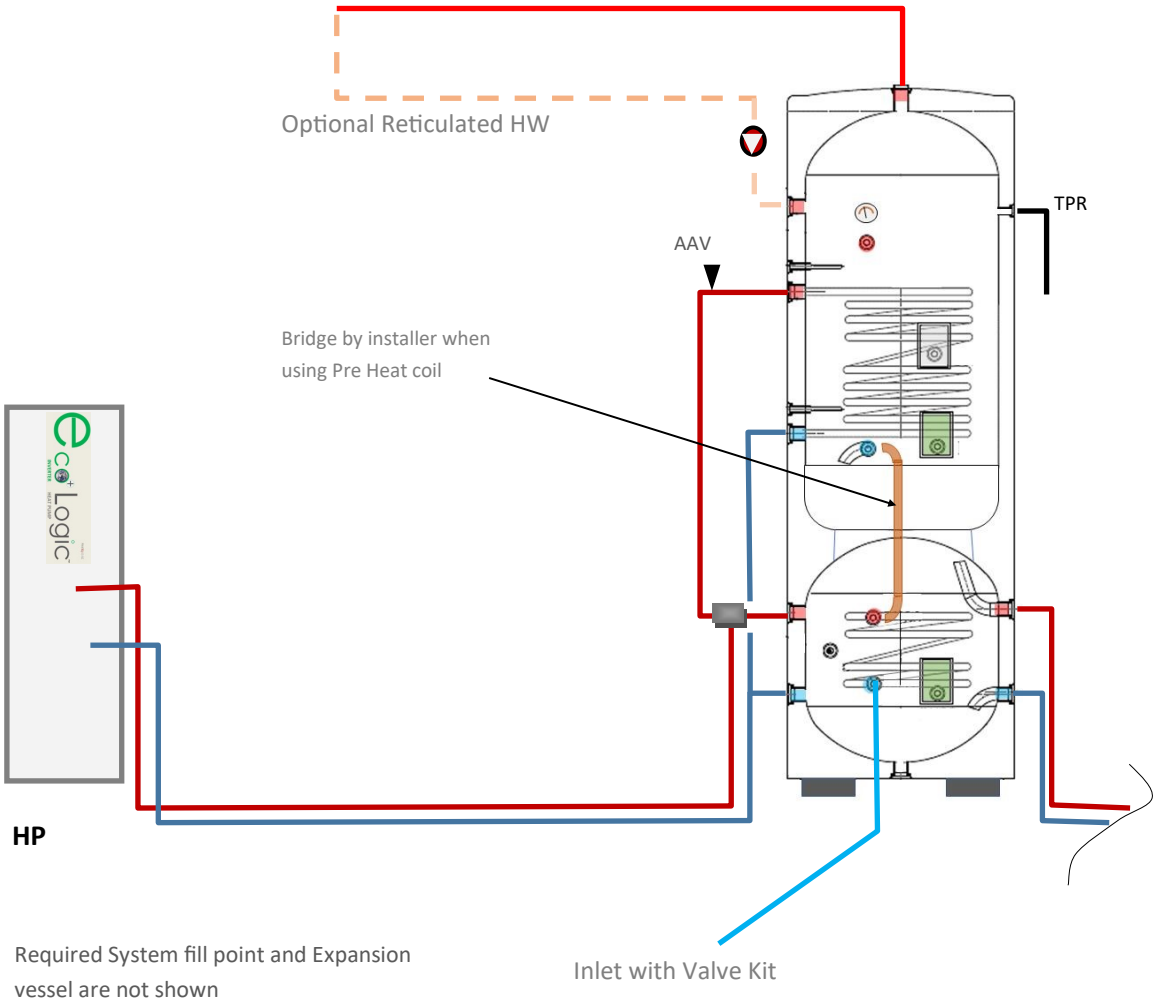
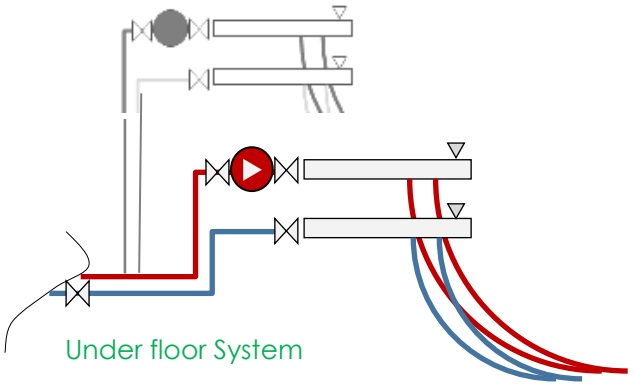
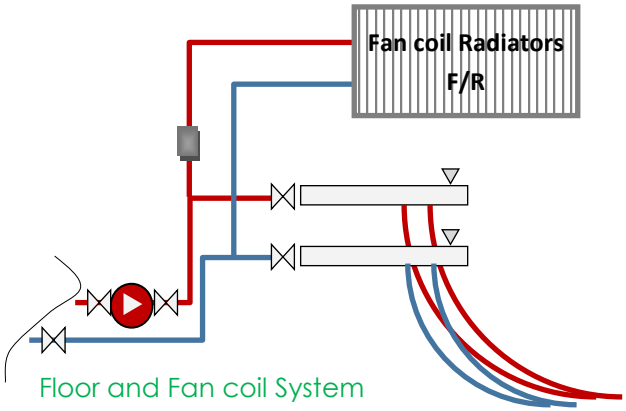
Mechanical connections : Heating & Hot water systems



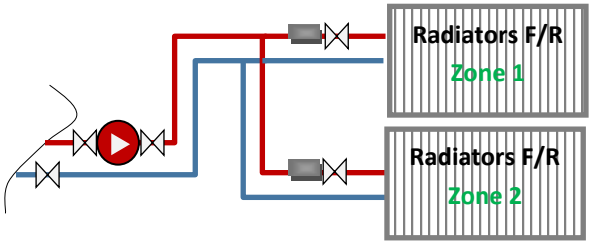
Required System fill point and Expansion vessel are not shown



Under floor System

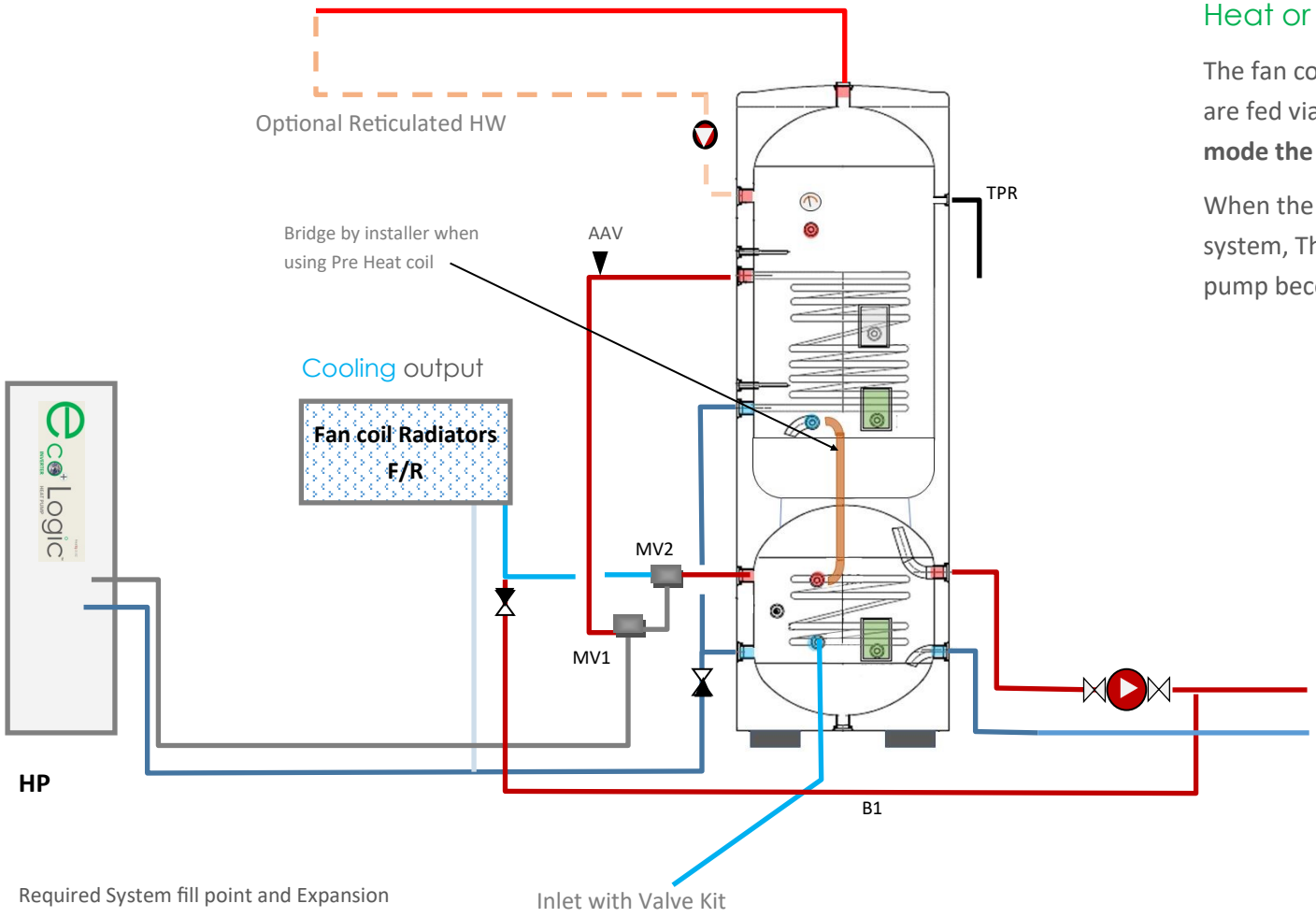


Floor and Fan coil System



Conventional Radiator System

Mechanical connections : Systems with Cooling



Required System fill point and Expansion vessel are not shown

Heat or Cool

The fan coils forming the cooling output system are fed via **MV2** when cooling is active, **in this mode the buffer is locked out of the system.**

When the fan coils are used as part of the heating system, The bridge **B1** is pumped via the system pump becoming the flow **MV2** is closed.

Heating output

This could under-floor, fan coils or conventional radiators .

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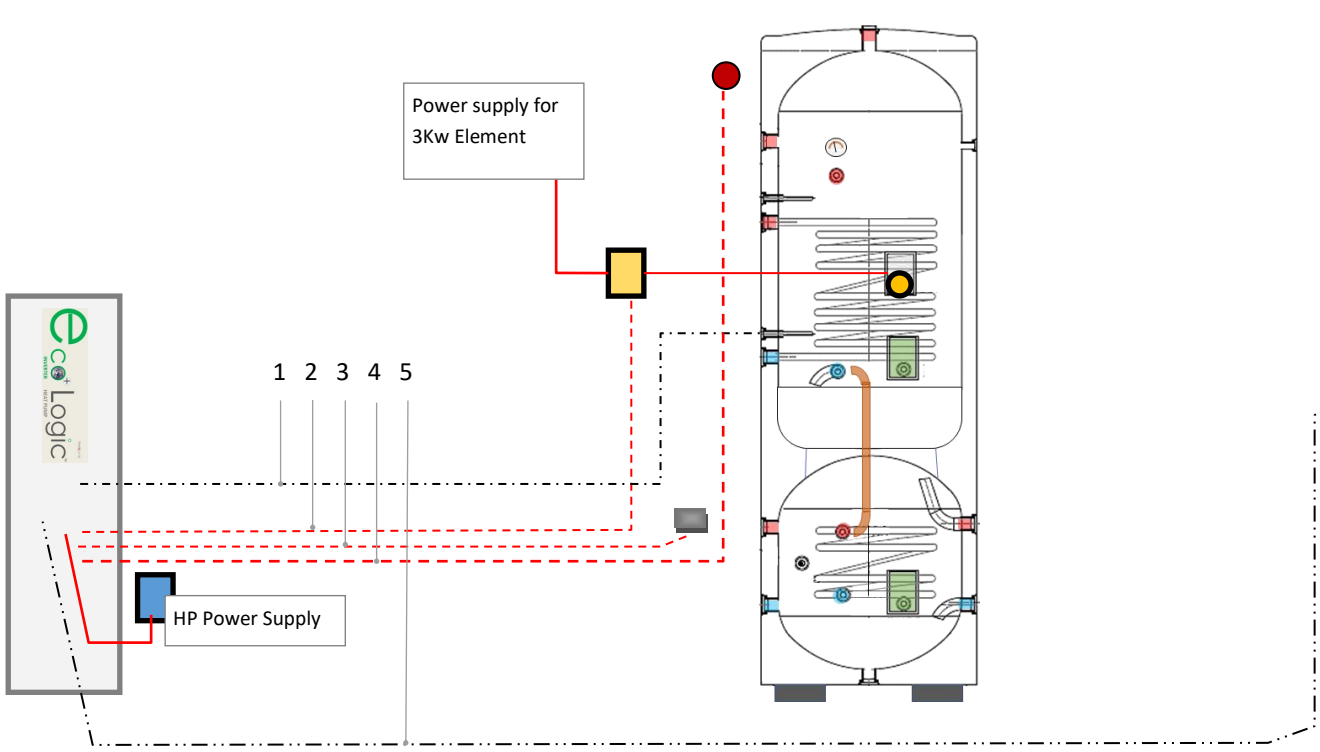
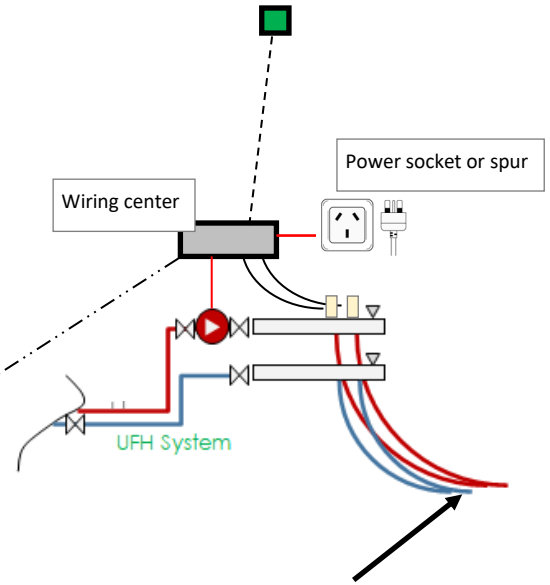
Wiring outline UFH or manifolded Radiators

1	HT sensor cable Supplied with HP
2	1.5mm Twin and earth to Relay JO2 By electrician
3	1.5mm Twin and Earth to 3 way valve
4	1.5mm Twin and Earth to Reticulated hot water pump
5	1.0mm Two core cable for potential free switching

———	Suitably sized power supply cable
▮	Relay be electrician for switching of element via HP control (cable 2) Refer to HP manual
▮	Room or zone thermostats—No, as required by the system





Under Floor loops or individually fed radiators are supplied from a manifold. Each room or Zone is individually time and temperature controlled.

HP

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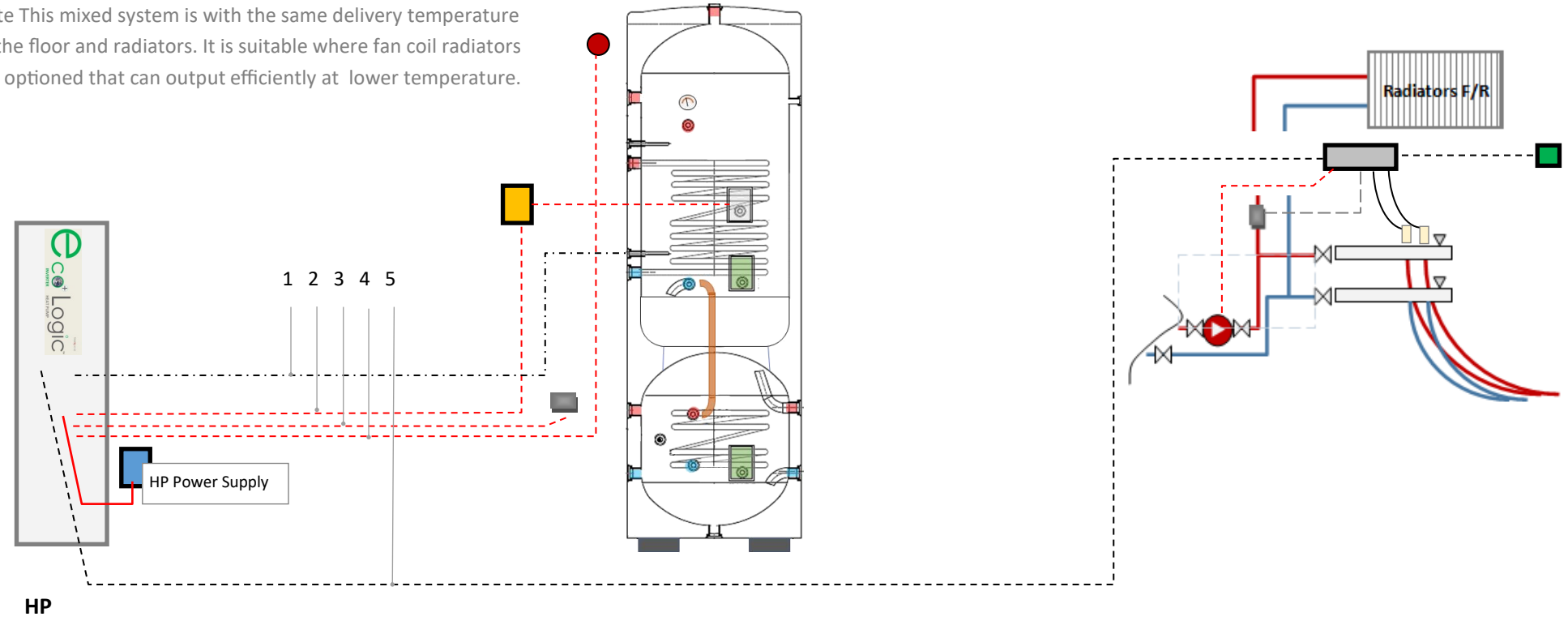
Wiring outline UFH & Fan coils

1	HT sensor cable Supplied with HP
2	1.5mm Twin and earth to Relay JO2 By electrician
3	1.5mm Twin and Earth to 3 way valve
4	1.5mm Twin and Earth to Reticulated hot water pump
5	1.0mm Two core cable for potential free switching

	Suitably sized power supply cable
	Relay be electrician for switching of element via HP control (cable 2) Refer to HP manual
	Motorised 3 way priority valve for HW supplied with 1m pre wired flex cable
	Room or zone thermostats—No, as required by the system

Note This mixed system is with the same delivery temperature to the floor and radiators. It is suitable where fan coil radiators are optioned that can output efficiently at lower temperature.



Sensor probe (1) should not run along side of 240V ca-

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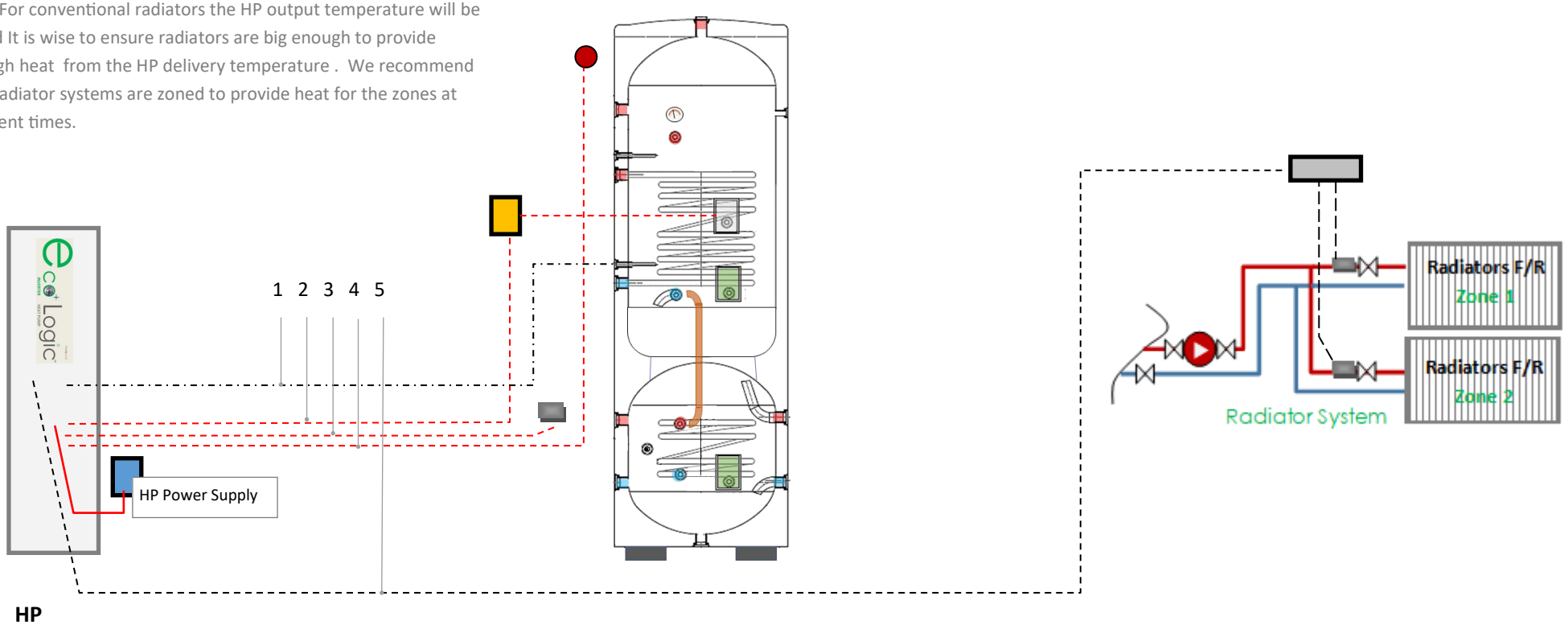
Wiring outline, conventional radiators

With a traditional Flow and return pipe system.

1	HT sensor cable Supplied with HP
2	1.5mm Twin and earth to Relay JO2 By electrician
3	1.5mm Twin and Earth to 3 way valve
4	1.5mm Twin and Earth to Reticulated hot water pump
5	1.0mm Two core cable for potential free switching

	Suitably sized power supply cable
	Relay be electrician for switching of element via HP control (cable 2) Refer to HP manual
	Motorised 3 way priority valve for HW
	Room or zone thermostats—No, as required by the system

Note For conventional radiators the HP output temperature will be raised It is wise to ensure radiators are big enough to provide enough heat from the HP delivery temperature . We recommend that radiator systems are zoned to provide heat for the zones at different times.



Sensor probe (1) should not run along side of 240V cables

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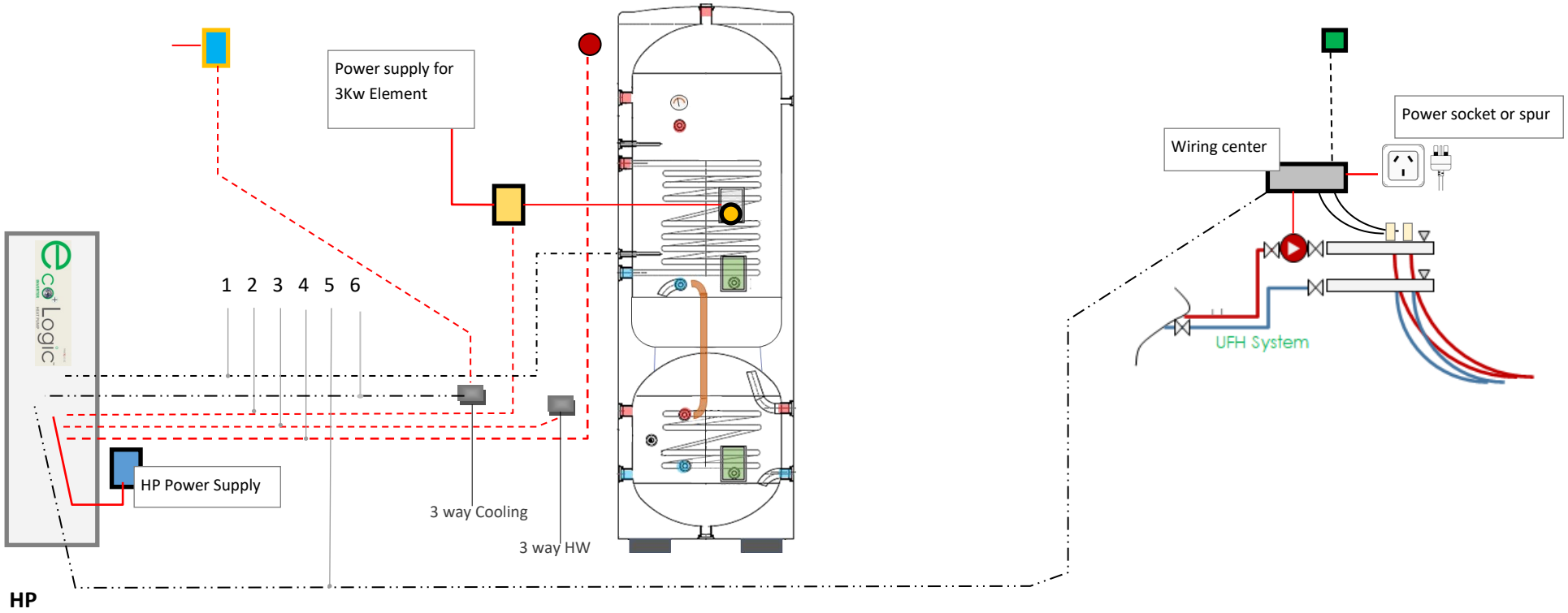
Wiring outline : Heat & Cool

1	HT sensor cable Supplied with HP
2	1.5mm Twin and earth to Relay JO2 By electrician
3	1.5mm Twin and Earth to 3 way valve
4	1.5mm Twin and Earth to Reticulated hot water pump
5	1.0mm Two core cable for potential free switching
6	1.0mm Two core cable for Potential free Switching

	Suitably sized power supply cable
	Relay be electrician for switching of element via HP control (cable 2)Refer to HP manual
	Motorised priority diverter valve
	Room or zone thermostats—No, as required by the system
	Cooling activated—on off control



Sensor probe (1) should not run along side of 240V ca-

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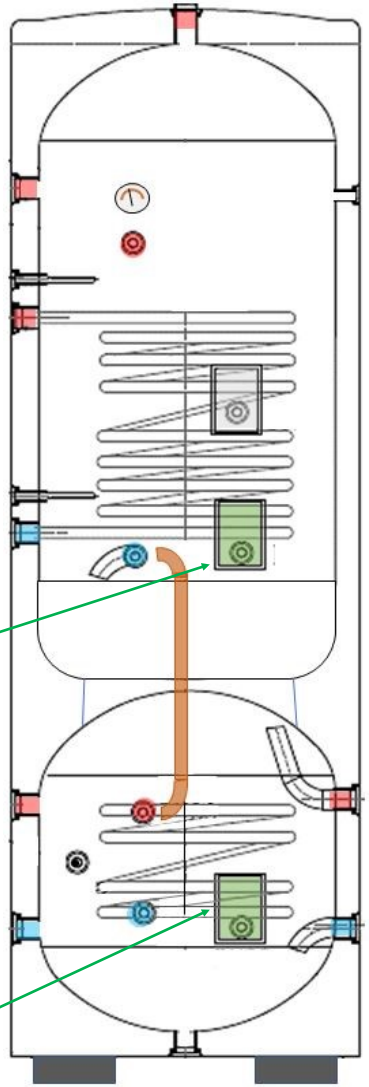
Solar PV ready

Two solar PV element ports are included An 1¼" plug is provided for each.

We provide a contact thermostat with each port but do not supply the PV suitable elements.

We also have differential thermostats with cylinder probes available.

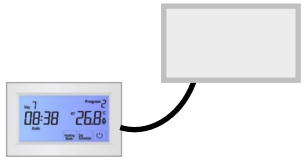


Recommended Options

Reduced Hot water run off

On/ off period controlled pump circulation of a reticulated hot water loop via your Eco+Logic heat pump can deliver hot water to localized tempering reducing run off and saving energy. IQ Order ref HIQ 076 pump, is designed for this application. silently circulating Hot water at a pace that will not break down the HW cylinder stratification.

Secondary HW module



Our unique hot water module further enhances domestic hot water and energy management via the following features…

1/ Top of tank Triggering, For energy frugal input by the element a sensor in the upper cylinder pocket is used to trigger the element only when the upper level of the cylinder drops below a settable temperature. This feature is able to be continual or in three settable time zones.

2/ Manual Element override, The user has a simple override to turn the element on at will as required without the HP interface.

3/ Interface with Legionella management, Module allows for the element to be controlled on via The Eco+Logic inverter HP's on board Legionella protection program.

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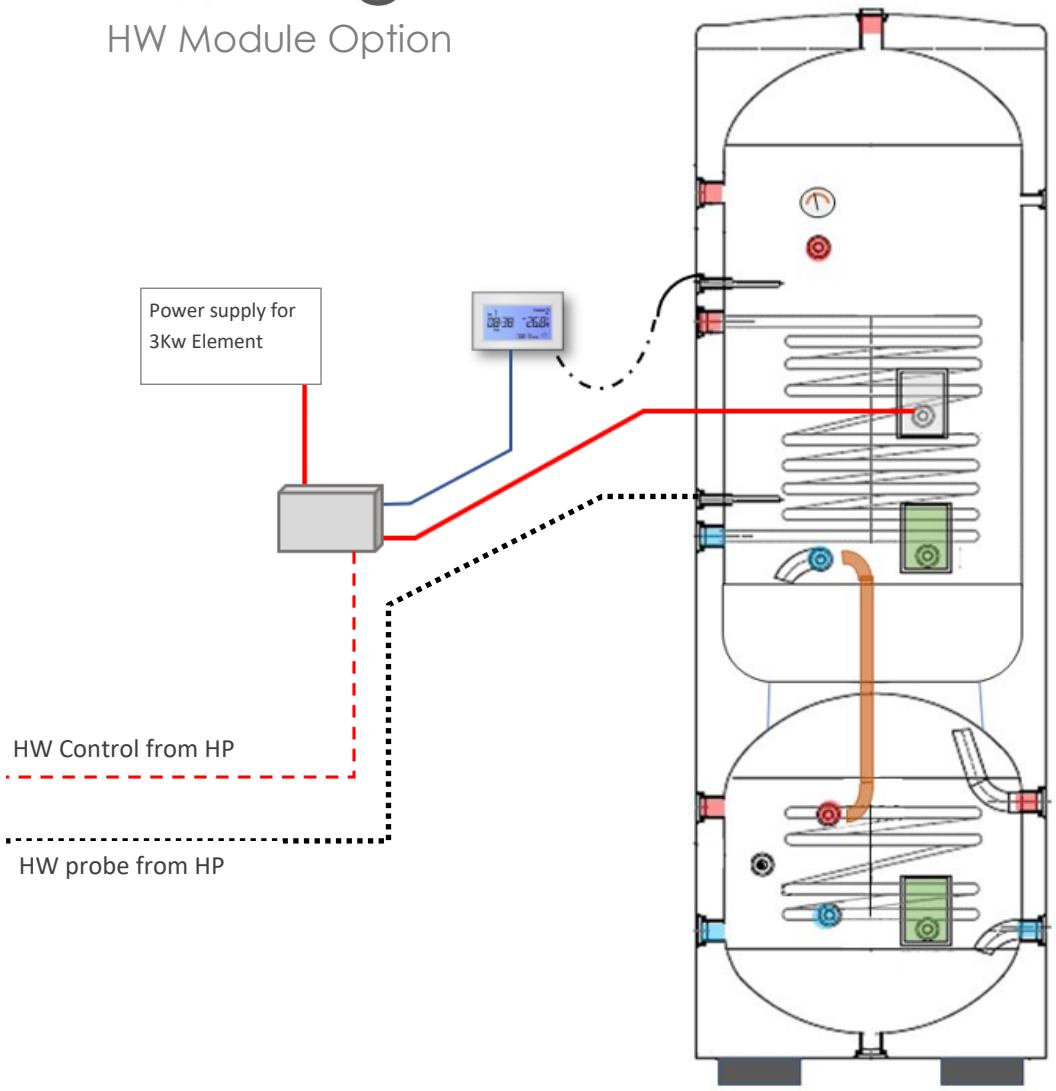
HW Module Option



Module replaces Relay by electrician shown in preceding wiring details

When the Hot water module is incorporated

The element is controlled by both the Module and the HP

The module is directly in control for DHW and user override.

The HP remains in control for Legionella protection.

The advantage of this configuration

The element is only activated if it is required and in regular use only heats the top half of the cylinder volume thus the HP will heat more of the DHW requirement

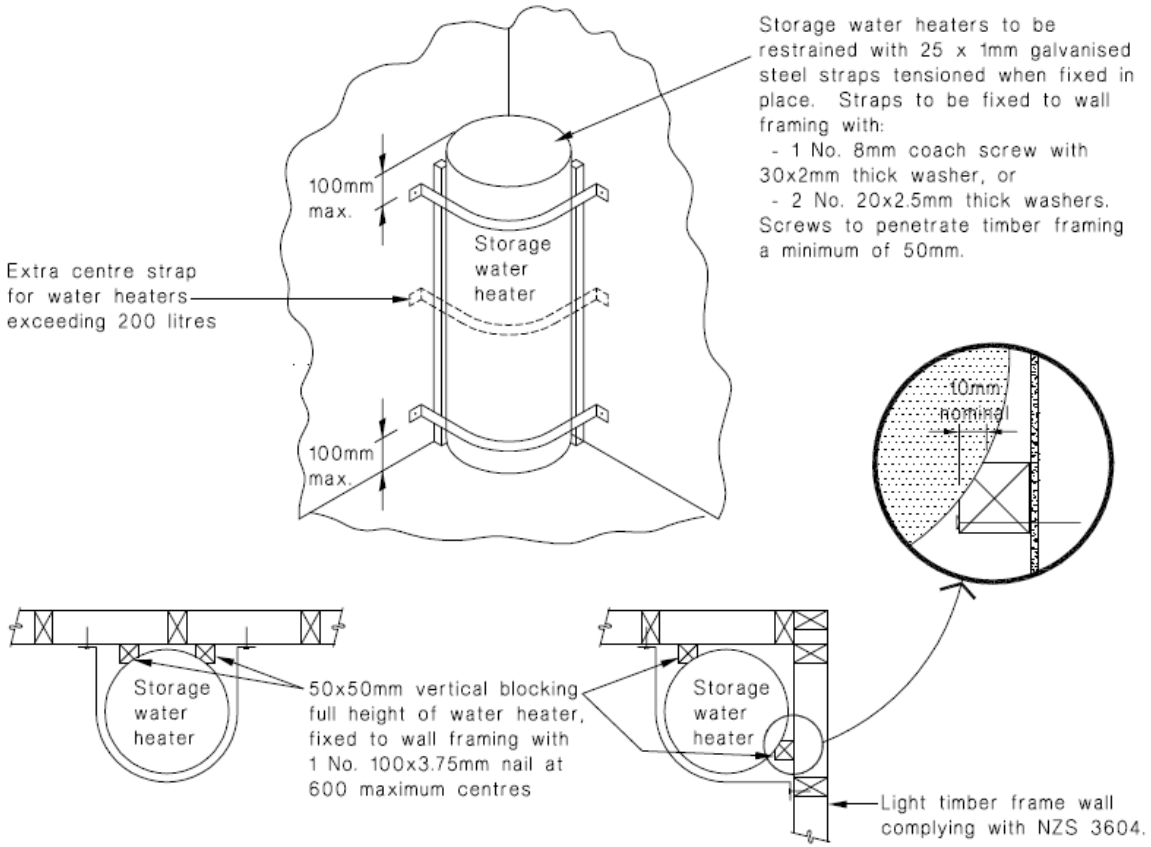
When the HP triggers the timed legionella mode the lower probe, from the HP is in control ensuring full cylinder heating.

An energy saving around 10% is achieved.

ENERGY EFFICIENT

Seismic Restraint of Storage water heaters 90-360 Litres

Paragraph 6.11.4 Extract from G12 NZ



A Drain Tray must be used in all installations

Regardless of code which may require a drain tray A drain tray with a suitable drain connection must be included no claim will be accepted where failure to provide a drain tray leads to subsequential damage.

The drain tray is not Included.

Inlet valving

The following valving must be provided by the installer

A TPR valve. This must be installed using PTFE/Teflon tape not with hemp and paste.

A cold pressure relief valve.

An inlet pressure limiting valve not exceeding 500 KPA must be fitted this should include a service valve and a strainer

For 350 KPA inlet - a 700 KPA TPR with a 550 KPA cold relief

For 500 KPA inlet - a 850KPA TPR with a 700KPA cold relief

A Non return Check valve must be included on the Cold inlet line before the cold relief valve.

Warranty is void where the above items are not installed

Where the water supply is limited (Rain water supply for example an expansion tank on the hot water cylinder is recommended.

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Combi-Tank warranty ***5*** Years from Date of purchase.

The following conditions apply

1/ This Combi-Tank must be installed Internally or in a place where it is not exposed to rain or aggressive salty or sulphureous atmosphere .

2/ Use and installation must be as intended, in line with the requirements in this manual.

3/ Temperatures within the Buffer and cylinder body must not regularly exceed 90°

4/ Any system connected to the buffer body or cylinder coil must include a suitably sized expansion vessel

5/ Inhibitor at the correct level must be included in the water within the Buffer and applied through the cylinder coil.

6/ **Periodic maintenance is required.** The anode fitted in the DHW section must be replaced every Max 48 months using the original manufacturers part . All connections should be checked for soundness and any leaks rectified promptly.

7/ The warranty on this Combi-Tank does not Cover damage as the result of Harsh water quality .

TDS up to 650 PPM - Total Hardness up to 200 PPM - Dissolved CO_2 25 PPM - PH 6.5-8.5

Warranty covers reasonable time labor for replacement up to a maximum of 6 Hours at a rate not exceeding that set out in our published terms and conditions. We also cover a nominal travel expenses again as set out in our terms and conditions.

This product warranty does not cover consequential damage and does not cover additional costs such as call out fees.

Warranty is only applicable when installed and used as prescribed in a single domestic situation .

Warranty is 1 year only in any commercial application.

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