

Owner's Manual & Installation Instructions

Zone Comfort™
hot water air handler
and zoned distribution system

ECOLOGIX HEATING TECHNOLOGIES INC.

221 Holiday Inn Dr.
Cambridge, Ontario
N3C 3T2

Phone: 519-658-4330

Fax: 519-658-9384

info@ecologix.ca

www.ecologix.ca

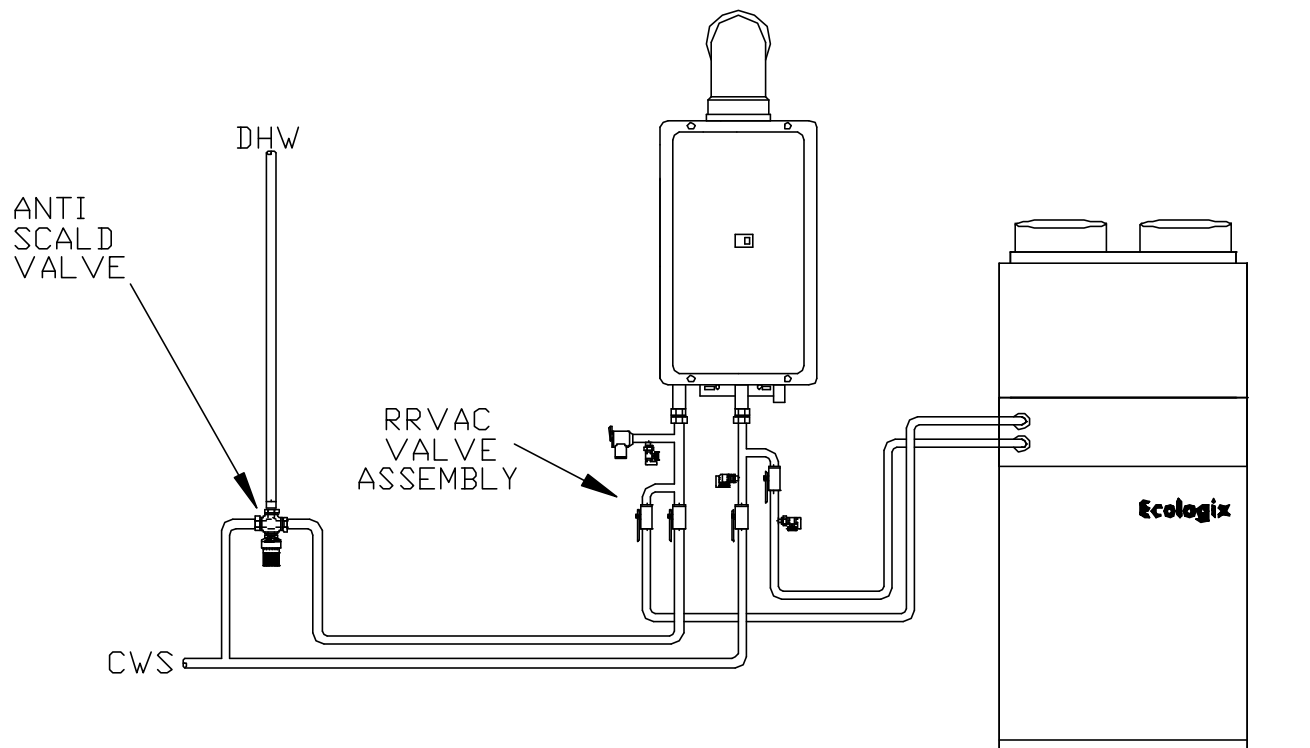
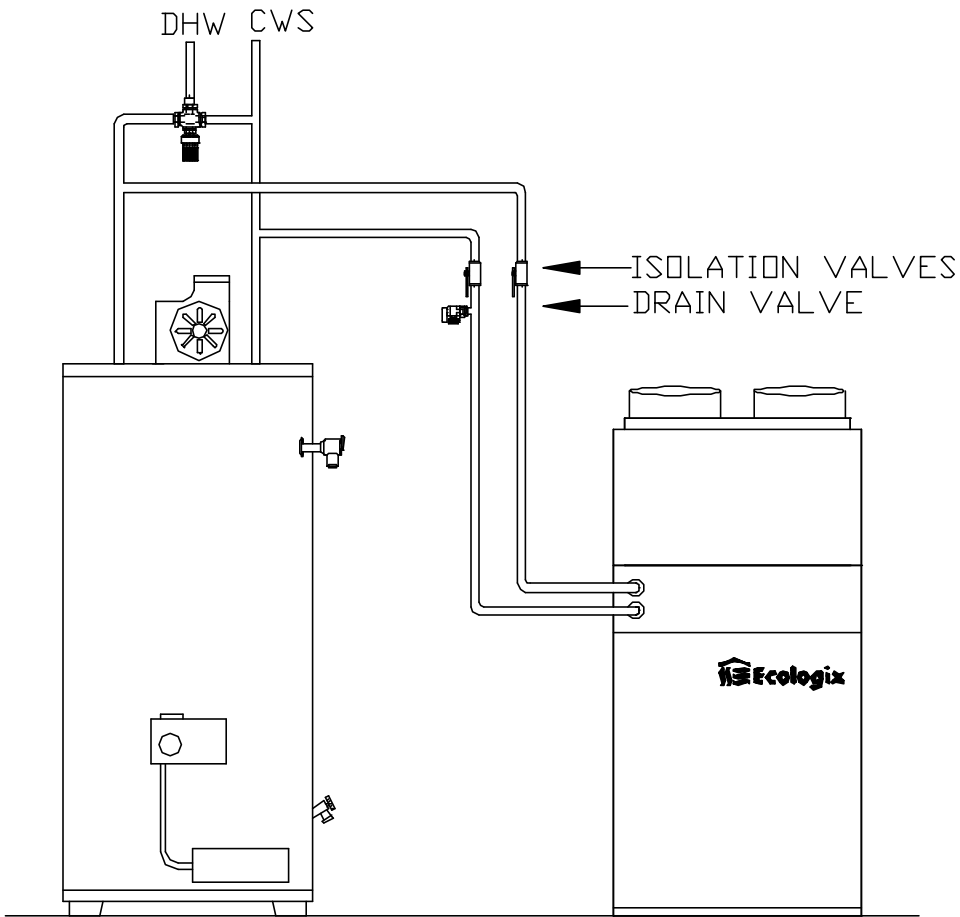
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CHECKLIST FOR THE INSTALLER

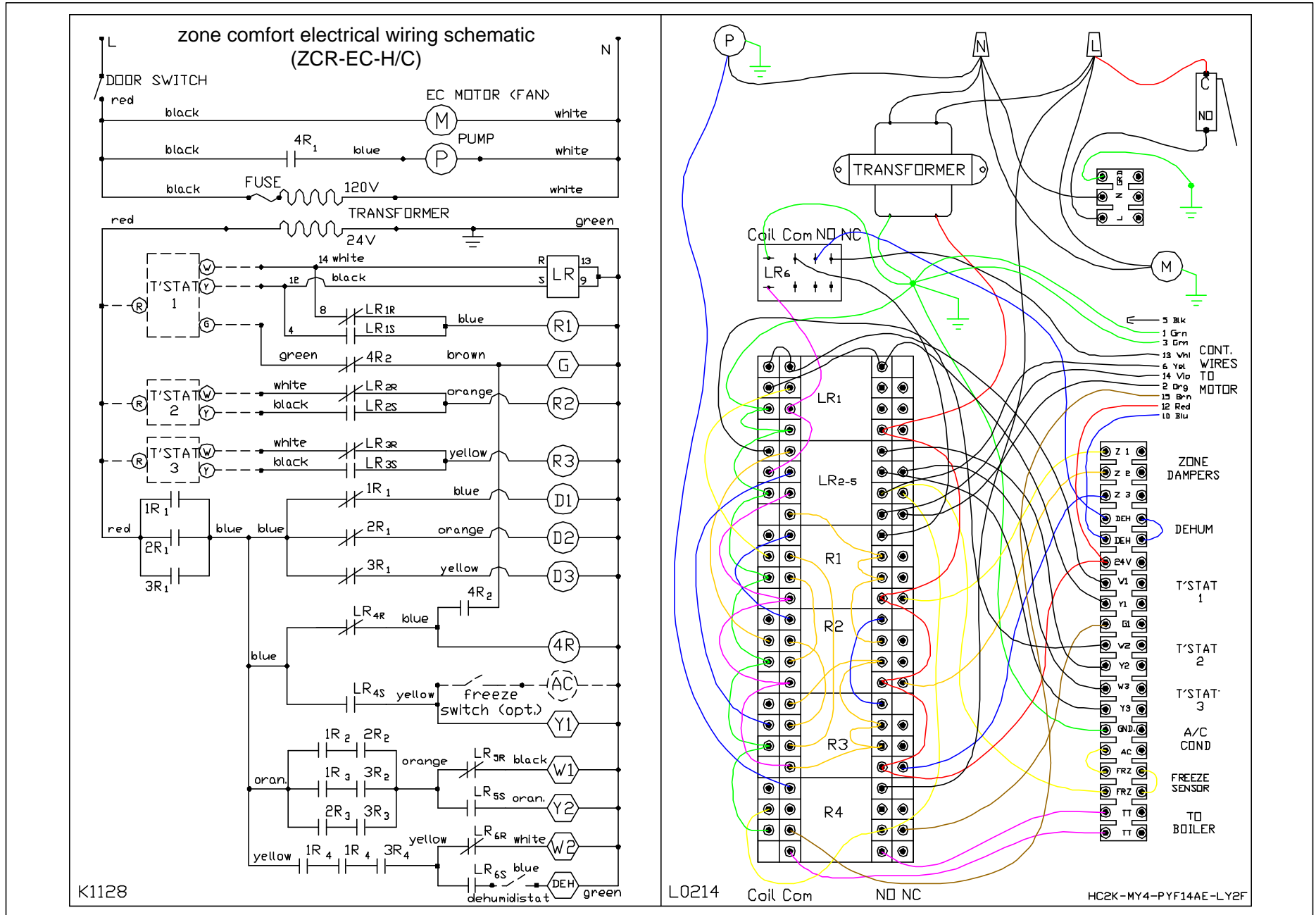
<input checked="" type="checkbox"/>	A Quick Check List
<input type="checkbox"/>	Are the water connections to the water heater oriented in a way to avoid trapping air in the heating circuit? (see diagram on next page)
<input type="checkbox"/>	Is the purge valve installed on the return line from the air handler upstream from the isolation valve?
<input type="checkbox"/>	Is the air handler hung and isolated to avoid transmitting vibration through framing and duct work?
<input type="checkbox"/>	Are the isolation valves full-port? Restrictive valves will limit performance.
<input type="checkbox"/>	Is outdoor cooling unit contactor wired according to the wiring diagram?
<input type="checkbox"/>	Are Thermostat connections correct, including cooling and continuous run connections? Do they operate their intended zone?
<input type="checkbox"/>	Have the packing materials been removed from the blower and the pump ?
<input type="checkbox"/>	Is there an installation manual for the home owner ?
<input type="checkbox"/>	Is the unit accessible? Are there clearances for service and component replacement?
<input type="checkbox"/>	Is the return duct/drop acoustically lined ? (at least 6' of the return duct/drop must be lined)
<input type="checkbox"/>	Is the filter cover in place? Is a clean filter in place? Is the supplied filter rack installed?

TYPICAL PLUMBING CONNECTIONS



ELECTRICAL WIRING DIAGRAM

REFER TO WIRING DIAGRAM IN AIR HANDLER FOR CORRECT CONFIGURATION



EQUIPMENT SPECIFICATIONS AND SIZING TABLES

REFER TO Small-D design Guide for additional duct sizing options.

TABLE 1 - Air Handler Selection Table

Model	ZC-18	ZC-24 ZCT-24	ZC-30 ZCT-30	ZC-36 ZCT-36	ZC-42 ZCT-42	ZC-48 ZCT-48	ZC-60 ZCT-60	ZC-100
Minimum number of 3" outlets	18	24	30	36	42	48	60	68
Minimum Branches per Zone	5	6	8	9	11	12	15	17
Heating Capacity (Btu/h)@ 130°F	22,000	35,000	41,000	46,000	49,000	52,000	58,000	91,000
Heating Capacity (Btu/h)@ 140°F	25,000	41,000	48,000	54,000	57,000	61,000	67,000	106,000
Heating Capacity (Btu/h)@ 160°F	32,000	53,000	62,000	69,000	74,000	78,000	86,000	135,000
Heating Capacity (Btu/h)@ 180°F	40,000	65,000	76,000	85,000	91,000	96,000	105,000	164,000
Air flow rate at high speed (cfm)	540	720	900	1080	1260	1440	1800	2000
Cooling Capacity (Tons)	1.5	2.0	2.5	3.0	3.5	4.0	5.0	5.0
Blower Motor Full Load (Amps)	5.5	5.5	5.5	7.7	7.7	9.6	9.6	9.6
Circulator Full Load (Amps)	0.6	0.8	0.8	0.8	0.8	0.8	0.8	1.4
Cabinet Width (in.)	14	22	22	22	22	22	22	22
Cabinet Depth (in.)	20	22	22	22	22	22	22	22
Cabinet Height (in.) (Regular)	37	44	44	44	44	44	44	61
Cabinet Height (in.) (Tall)	N/A	61	61	61	61	61	61	N/A
Supply Air	3x6"F	3x8"F	3x8"F	3x8"F	3x8"F	3x10"F	3x10"F	3x10" F
Return air (in.)	12x16	20x20	20x20	20x20	20x20	20x20	20x20	20x20
Supply and Return Water Connections (in.)	1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Weight-air handler only (pounds)	90	110	110	110	110	120	120	130

Heating capacity based on 70°F return air, high speed, 20°F water temperature drop through the coil and 12.5 feet length per branch at 3" diameter

Regular ZC requires Ecologix Horizontal slab cooling coil (extra) model HC1216 for ZC-18 or HC2020 for all others up to 3.5 tons.

Tall ZCT can use cooling A-coil supplied by others. Cabinet opening is 20W x 21D x 18H.

INTRODUCTION

The **Zone Comfortä** system is a heating and cooling system that enhances comfort and improves efficiency by giving more control over the distribution of conditioned air. Homeowners enjoy many benefits such as healthy indoor air, comfortable basements and cool summer evenings. Multiple thermostats provide the means to zone the home floor by floor in order to gain more control. This will virtually eliminate over or under conditioned spaces as is common in a lot of homes today.

The **Zone Comfortä** system is designed for use in hydronic (boiler) systems or combination space and water heating systems (Combo Systems). Combo heating systems use the home's water heater to provide both the space heating and domestic hot water, eliminating the need for a furnace. The equipment can

be configured for heating only, heating and cooling or cooling only applications.

The **Zone Comfortä** duct system is much smaller than conventional ducting making it ideal for retrofit applications or where a conventional duct system would result in unsightly bulkheads and wasted space.

When used as the warm air distributor of a boiler heating system the **Zone Comfortä** air system can provide warmer more comfortable air temperature than a gas furnace with less noise and much smaller duct requirements. This is ideal for large custom homes where a premium heating product is required that is quiet, comfortable and out of site.

HOW IT WORKS

The key to the Zone Comfort™ system is the level of comfort and efficiency provided by the unique control system. Zone dampers in the air handler operate to increase or decrease the capacity in each zone of the house as needed.

The controller employs the **Quiet Comfort** control strategy in order to have the capacity of the air handler meet the needs or load of the space as closely as possible. This means that the blower does not run on high speed each time the room thermostat calls for heat, rather the

air handler dynamically adjusts its capacity. The air handler runs quietly, at lower speeds, for the majority of the time.

This cutting edge approach reduces fan energy requirement, promotes better blending of the room air and less stratification within the living space.

Cooling mode uses a modulating strategy to maximize homeowner comfort. Blower speed is carefully controlled to optimize dehumidification. When cooling demand is low (only one or two zones requiring

cooling) the blower runs a little slower. The air has more residence time in the evaporator coil. This results in removing more moisture from the air, thus maintaining the humidity in an optimum range.

Zone One

The primary or master or zone one tells the air handler whether it is heating season or cooling season or if continuous air circulation is desired. Any zone can be zone one but it is typically the main area of the building (living area).

Zones two and three act as slaves to the primary zone. **The primary zone must call for heating or cooling at least once at the beginning of the season to tell the Zone Comfort air handler that it is in heating mode or cooling mode. The switch on the primary thermostat is not enough! There must also be at least one call for heating or cooling (a short, 5 second call is adequate).** Until this happens, a call on zone two or three is ignored.

Off

All zone dampers are open if there is no call for heating or cooling or power is off.

Heating

The objective of the heating strategy is to run the blower as quietly as possible in order to provide good air circulation at a low noise level. The fan automatically and gradually switches between speeds based on time and the number of zones operating.

When a thermostat calls for heating, the internal pump starts and the boiler is activated (if connected to TT). The zone damper for any zone not requiring heat

closes. The fan will run at a very low speed for 45 seconds to permit pre-heat of the coil. The fan will then run at half speed for 15 minutes. In most cases, this will satisfy the heating call quietly and efficiently. If the heating call is not satisfied, the fan will speed up to maximum until the thermostat is satisfied.

Cooling

When a thermostat calls for cooling, the outdoor air conditioning condenser is activated. The zone damper for any zone not requiring cooling closes. Fan speed is based on number of zones calling for cooling.

Continuous Fan

When the thermostat fan switch for the primary zone is set to continuous fan, the fan will run at low speed for all zones. When there is a call for heating or cooling, the normal heating or cooling speed will over-ride the continuous fan setting. Zones not requiring heating or cooling will close. Once the thermostat is satisfied, continuous fan speed will resume.

Ecologix air handlers offer many unique features that set them apart from the competition.

Feature	ZC Series
Soft Start	S
Warm Start	S
Cool Start	S
Cooling Warm Up	S
Evaporator Coil Freeze Protection	O
Hot Water Coil Freeze Protection	O
Dehumidification	O

S=Standard O=Optional

Soft Start is a feature that starts the fan slowly and quietly rather than a large “thump” common in some furnaces and air handlers.

Warm Start is a feature that allows the blower to run quietly until the ductwork is flooded with warm air.

Cool Start is a feature that allows the blower to run quietly until the A/C condenser is up to capacity.

Cooling Warm Up is a feature that increases cooling efficiency. The blower will run and slowly wind down until all of the cooling effect has been extracted from the cooling coil.

Evaporator Coil Freeze Protection

If the evaporator coil air temperature drops outside of the expected operating range this indicates a potential evaporator coil freeze condition. Coil freezing can lead to slugging (liquid refrigerant going back to the compressor) which will

damage the compressor. With the optional sensor, the Zone Comfort will respond by shutting off the outdoor cooling unit to allow the system to warm up. Note that this freeze condition is not normal and may indicate blocked ducts, dirty filter or an over-sized cooling unit.

Hot Water Coil Freeze Protection

If the water coil temperature drops below the expected operating range this indicates a potential freeze condition. Optional coil protection will run the pump and fan.

TT Connections

TT connections are provided for the heating contractor to operate a boiler or external pumps and devices. Refer to the wiring diagram on page 5 for details.

PRODUCT DESCRIPTION

Cabinet

All cabinets have a tough, durable low maintenance painted finish.

Cabinet dimensions are designed to provide maximum installation flexibility. Refer to installation requirements for more details.

Heating coils

All heating coils are potable water grade copper suitable for use in plumbing systems. No lead solder is used in any component construction. All coils and internal piping conform to ASTM B68 or ASTM B88 standards.

High-density aluminum fins provide maximum heat transfer for small coil surface.

Fan and Motor

All fans are wide body dynamically balanced for extra quiet operation. Multi-directional sleeve bearing motors allow mounting in any direction for maximum installation flexibility.

Circulating pump

The circulating pump is matched for maximum performance. Air handlers come with internally mounted pumps for ease of installation. Air handlers can be special ordered with external, field installed pumps, when it is desirable to locate the circulator below the air handler, such as in attic installations.

Check Valve

Check valves serve two purposes:

- protect against back-flow of water to avoid short circuiting around the water heater during domestic water use.
- protect against thermal siphoning.

Thermal siphoning is flow of water through the space heating circuit while the circulating pump is not operating due to hot water rising by natural convection. During summer months this will cause overheating, interfere with air conditioning and waste energy.

All **Ecologix** air systems come supplied with spring loaded check valves. The check valve may be integral with the pump. These check-valves have been tested and proven to resist thermal siphoning for installations where the air handler elevation does not exceed the distance above the water heater shown in the table below.

Check Valves

valve size	Maximum elevation
1/2"(12mm)	25 feet(8 metres)
3/4"(20mm)	50 feet(15 metres)

EQUIPMENT SIZING AND SELECTION

Procedure

1. Conduct a complete heat loss / heat gain calculation.
2. Determine inlet water temperature
3. Select Air Handler
4. Determine three zones within the space
5. Select # outlets per room
6. Determine Duct Layout

Heat Loss / Heat Gain

Room by room calculations need to be completed using HRAI, ASHRAE, or another approved sizing methods.

Air Handler Selection

The selected air handler must be sized according to the following rules:

- a) Heating capacity must be between 100 and 140 of the heat loss.
(110 to 140% for combo systems @ 130°F water temp)
- b) Cooling capacity must be between 75-100% of the heat gain.

When using a boiler system, select a boiler with an output that meets or exceeds the heat loss of the space being heated. If the boiler is serving additional loads, size the boiler to meet the total combined load.

For combo heating systems, use an approved sizing method such as the Unified Combo Guidelines published by HRAI.

Define Zones

The space served by the air handler should be divided up into three zones. Each of these zones is to be served by a single main duct by the air handler. Zones can represent areas such as the basement, main floor and second floor. In some applications, it may be desirable to divide the area in to east facing, west facing and basement zones depending on solar gain. Zoning based on usage is also acceptable: office, living and sleeping areas for example.

INSTALLATION

The installer must adhere strictly to all local and national code requirements pertaining to the installation of this equipment. Detailed instructions are shipped with all accessory items and should be followed in detail.

Air Handler Mounting

The Zone Control air handler can be installed in any direction. Some

precautions must be observed for some of the possible mounting positions. For installations where the access door faces up or down, select an air handler with an external pump to avoid the pump being mounted with its shaft vertical. The pump shaft must be mounted horizontally to avoid premature failure.

The air handler can be hung by securing straps through any of the existing screw

holes in the cabinet. When the existing screw is too short for securing a mounting strap, a longer screw can be used provided care is taken not to damage any internal components. When fastening straps using screws other than those supplied with the cabinet, special care should be taken in the vicinity of the coil to avoid tube puncture.

The cabinet is designed so that the return air can be located on either side of the cabinet, through the bottom of the cabinet, or from the back. Position the filter rack so that the filter is readily accessible.

Install the air handler with the door firmly screwed in place to make sure the cabinet remains square.

Provide at least 2 feet (0.75 metres) of service clearance in front of the access panel of the air handler. Zero clearance is acceptable on all other faces.

Ductwork

Duct selection for zones 1, 2 and 3 should be based upon ease of installing ductwork. Final assignment of zones can be done by changing zone damper wires on the terminal block. Duct connections at the air handler should be labeled for future reference (eg. bsmt, main, upstairs).

Supply trunks may be square or round. SEAL all joints and seams with metal tape or sealing compound. Locate outlets at least 6 inches from outside walls or window coverings. One 25 ft length of flex duct will provide two 12.5ft branches

Use only Class 1 flex duct or duct connector. All vertical portions of branch connections (such as to high wall grilles) must be rigid duct. Flexible duct may only be used in horizontal portions of the branch.

Return air plenum should be the same cross sectional area as the air handler return air opening. In vertical installations, a conventional return air drop and elbow is acceptable.

Ductwork installed in unheated spaces such as attics must be installed between the insulation and the heated space. Provide at least R-12 of insulation above ducts. If cooling is required, the branch and trunk lines must be insulated and sealed with a vapour barrier prior to applying house insulation.

Risk of Freezing

Steps must be taken to prevent the hot water coil from freezing. Coils that have failed due to freezing and damage caused by frozen coils are not covered under warranty.

HRV and Fresh air connections

If a fresh air duct is required, make connection to return air plenum at least 18 inches from filter. Insulate all fresh air ducts.

Fresh air and HRV connections to ductwork can pose a risk of dumping cold air into ductwork during periods of stand-by or continuous run. Calculate mixed air stream temperatures and provide interlock controls to prevent freezing conditions.

Evaporator coils

The Zone Comfort is designed to provide acceptable airflow for cooling even if only one zone is operating in cooling mode. However, a small, single-zone operating for a long time or abnormal conditions such as plugged filter can poses risk of freezing. An optional freeze protection kit is available from Ecologix. If the sensor detects a near freezing condition it will interrupt the outdoor air conditioner until it warms up. (See catalogue No. CP-FPK)

Attic and crawl spaces

Air handlers may be located in areas subject to freezing conditions. It is necessary to protect the hot water coil from freezing. The optional Freeze protection kit (Catalogue No. CP-FPK) can be used to cycle on the pump and blower when conditions get close to freezing. The Freeze Protection Kit cannot protect piping that passes through unconditioned spaces

ELECTRICAL

Warning! - Make sure unit is properly grounded. Locate air handler on a separate electric circuit.

All air handlers operate on 115VAC/1ph/60hz line voltage. All control circuits are 24 VAC.

Thermostat

The **Zone Comfort**ä air handlers are compatible with most thermostats. Some electronic thermostats (primarily “power robbing” types) require the addition of a resistor between the W & C terminals and the Y & C terminals. This is usually covered in the thermostat instruction manual. A 1,000 ohm, 5 watt resistor on each of the W and Y terminals will usually be enough to drain the current required to power the thermostat. Some thermostats will need 250 ohm, 10 watt resistors on each of the W and Y terminals.

Any zone with cooling will require a heat/cool thermostat. The **Zone Comfort**ä air handler is compatible with all standard setback thermostats.

Setback thermostats can be used to achieve greater energy savings.

Heat Anticipator Setting

For optimum comfort the anticipator setting should be set to provide approximately 4 cycles per hour

Typical Heat Anticipator Setting	0.25 amps
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Note: The wires from each thermostat should be labeled for future reference. Label suggestions are: 1,2 3, or bsmt., main, upstairs. If labels are not available, use one, two or three “stripes” of tape.

Thermostat wire from the thermostat is connected to terminal block inside the air handler. The R from all three thermostats should be connected together. Only G from the primary thermostat is connected to the air handler. W1, W2, W3 represents heating for zone 1,2,3. Y1, Y2, Y3 represents cooling for zone 1,2,3.

Dehumidistat

Remove the jumper and connect to the terminals on the terminal block. Note that the logic is for the dehumidistat switch to open on high humidity. The feature requires the cooling to be on.

Zone Selection & Set-up

Zone 1:

Any zone can be the primary zone or Zone One. However, it is strongly recommended that this be the main zone to be heated and cooled. In a home, this is typically the main living area. This thermostat is the only one that is used to select continuous fan operation. It also plays a critical role in telling the air handler whether to be in heating mode or cooling mode.

When initially started, or after a power failure or during seasonal changeover from heating/cooling, this thermostat must call at least once before the air handler control will properly recognize a heating or cooling call from the other two zones.

Zones 2&3:

Both zones are the same and any area to be heated and cooled can be selected as zone 2 or 3.

START-UP PROCEDURE

Do not start the air handler or water heater until ALL air has been purged!

1. Fill the boiler loop or water heater with water, but do not start it.
2. Purge all air from the boiler heating or domestic water system.
3. Purge all air from the space-heating loop by closing the isolation valve on

Duct/Zone Connections to Air Handler:

The three 6"/8"/10" round duct connections on top of the air handler are labeled zone 1,2 and 3. The colours yellow, orange and blue correspond to the wire colours connecting them to the air handler control. **NOTE: THESE ARE FACTORY DEFAULT ZONE SELECTIONS AND THE INSTALLATING CONTRACTOR CAN REASSIGN ANY DUCT CONNECTIONS ON TOP OF THE AIR HANDLER ZONE ONE, TWO OR THREE.** .

To change duct connection assignments, change the wires connected to the top of the terminal block.

The output is as follows: thermostat #1 = Yellow, #2 = Orange, #3 = Blue. The factory default is for the same coloured wires connected to the dampers and labeled zones 1, 2 and 3. The colour labels on top of the air handler correspond to the wire colours to the damper. For example, to reassign the blue duct connection to thermostat #1, and yellow duct connection to thermostat #3, reverse the yellow and blue wires on the terminal block.

the return leg of the loop and open the drain to purge air. Open the return leg isolation valve and then close the drain valve.

4. Start the boiler or water heater according to the manufacturer's instructions. Set the design water temperature and wait for the system to shut off. You can check that the

water heater is set properly during the warm up by running a small amount of water into a glass in a sink while the water heater is warming up. Using a thermometer measure the temperature of the water as soon as the water heater burner shuts off. If the set-point temperature is too low or is above 140F, reset the tank control, run water until the burner starts again and repeat the measurement.

5. Turn on the power to the air handler and set the room thermostat for heat to energize the fan and pump. If a gurgling sound is present, it should subside within one minute. If noise is still present after one minute, repeat step 3 to purge air as necessary.
6. Check pipes for heating to make sure there is flow and feel the pump motor to see if it is running hot.

SERVICE AND MAINTENANCE

Filter

The **Ecologix** air handler is provided with a pleated filter media. This filter should be inspected monthly and replaced as required. Replacement filters are available from Ecologix.

Duct cleaning

If proper filter maintenance is adhered to, duct cleaning will not be required for the life of the equipment.

Coils

Air conditioning and heating coils should not require cleaning if the filter maintenance schedule is adhered to. If a filter is damaged or collapses from plugging, dust may foul the coils. If this happens, replace the filter and carefully vacuum the heating coil. The fan may need to be removed to gain access to the face of the heating coil.

Air conditioning coil

At the start of each cooling season, check the drain connection to the cooling coil to ensure it is free of debris. If a plugged air conditioning coil is suspected, call a service technician for testing and cleaning

Fan and motor

Check fan for dust once a year. If dirty, vacuum to remove dust. Keeping the fan blades clean will reduce noise and improve the capacity and efficiency of the heating system

Pump

The circulating pump is water lubricated and should require no regular maintenance. A cycle timer is available to exercise the pump even during prolonged periods of no heat to avoid seizing from long idle periods.

TROUBLESHOOTING

Thermostat Call Error

If the air handler does not run when zone two or three are calling, activate the primary zone briefly (5 seconds) to set the air handler in heating or cooling mode. Note that some thermostats have a delay (typically five minutes) before they will start the air handler in cooling the first time.

Wrong Zones Operating

Change the damper wires on the terminal block. Refer to the labels on the thermostat wires and colour code at the damper connections.

Pump does not run

In areas where hard water is present the pump may “stick” and fail to run. Often, closing the isolation valve on the return leg and opening the drain port so that water flows through the pump can free this. For Grundfos pumps, remove the screw-on cover from the face of the pump, and rotate the shaft one turn with a slotted screwdriver. If either method fails to free the pump, removal for cleaning or replacement is necessary. The daily pump exerciser will help prevent pump sticking.

Pump is noisy at start-up

Air is present in heating loop. If sound has not diminished within 1 minute, purge air in accordance with the *Start-Up* procedures. If heat source is a water heater, check to make sure branch

connections for heating loop are horizontal to prevent the collecting of air in the heating loop. See the drawing: Typical Plumbing Connections at the front of this manual.

Water heater T&P is weeping

A check valve or back-flow preventer may have been installed in the system. Some form of pressure relief may be required. Options are:

- Install expansion tank
- Install pressure relief valve; locate outlet over laundry tub or floor drain.
- Install combination toilet tank/pressure relief valve

Insufficient or no heat

- Plugged air filter or coil. Refer to *Maintenance* section for filter care and coil cleaning.
- Air in heating loop; purge system.
- Inlet and outlet connections to air handler backwards; reverse connections.
- Water heater supply tube (dip tube) is restricted or damaged; check and/or replace.
- Supply water temperature set too low or not calibrated properly; check water temperature. In the case of water heater; If the temperature has been set low because of homeowner preference, it may be necessary to install an anti-scald valve to control the faucet temperature and raise the operating temperature of the water heater.

- Restrictions in heating loop; remove restrictions, check valve stuck, isolation valves too restrictive, left partially closed after purging or closed valve.
- Water heater supply temperature is unstable. Check water heater setting and temperature sensors for good contact on coil headers.

Cold water at hot faucet

When heat source is a water heater, the most probable cause is reverse flow through the heating loop from a stuck check valve; repair or replace valve.

Fan runs for cooling but not heating

- Room thermostat may be connected improperly. Refer to *Electrical* section or wiring schematic on air handler for proper installation.

Heating during Standby Mode

Probable cause is thermal siphoning. See check valve description for details; repair or replace check valve. Check elevation of air handler above water heater to see if motorized valve required for positive shut-off.

This product is warranted by Ecologix Heating Technologies Inc to be free from defects in materials and workmanship that affect product performance under normal use and maintenance within the applicable periods specified below. Replacements furnished will carry only the un-expired portion of the original warranty.

Two-Year Parts

Ecologix Heating Technologies Inc will provide replacement parts for ANY part that fail within two years of purchase, subject to the **terms** below.

Five-Year Parts

Ecologix Heating Technologies Inc will provide replacement parts for any heating coils, cooling coils, cabinetry and piping that fail within five years of purchase, subject to the **terms** below.

Terms

- ❖ Reasonable proof of original purchase date must be provided in order to establish the effective date of the warranty, failing which, the effective date will be based on the date of manufacture plus thirty days.
The warranty does not cover failure or damages caused by:
 - improper installation or operation
 - accident, abuse or alteration
 - operation of device at temperatures or pressures outside of the rated capacities
 - lime or scale deposits
 - corrosive operating environment
 - equipment moved from original installation location
- ❖ Replacements furnished under this warranty will be F.O.B. Ecologix Heating Technologies Inc product distribution points in the United States and Canada. They will be invoiced at regular prices. The account will be credited the full amount when the defective part is received by Ecologix, examined and approved as a valid warranty.
- ❖ Warranty applies to the original purchaser, but may be transferred to another owner provided the equipment is not moved from the original installation site.
- ❖ This warranty does not apply to labor, freight or any other cost associated with the service repair or operation of the product.
- ❖ Ecologix shall not be liable for any direct, special, incidental or consequential damages caused by the use, misuse, or inability to use this product.
- ❖ Ecologix is under no legal obligations to rectify, including but not limited to, lost profits, downtime, good will, damages to, or replacement of equipment and property

- ❖ Purchaser assumes all risk and liability of loss, damage or injury to purchaser and purchaser's property and to others and their property arising out of the use, misuse or inability to use this product.