

INSTALLATION EXAMPLES (CONT'D)

Example diagram only-duct configuration may change depending on model

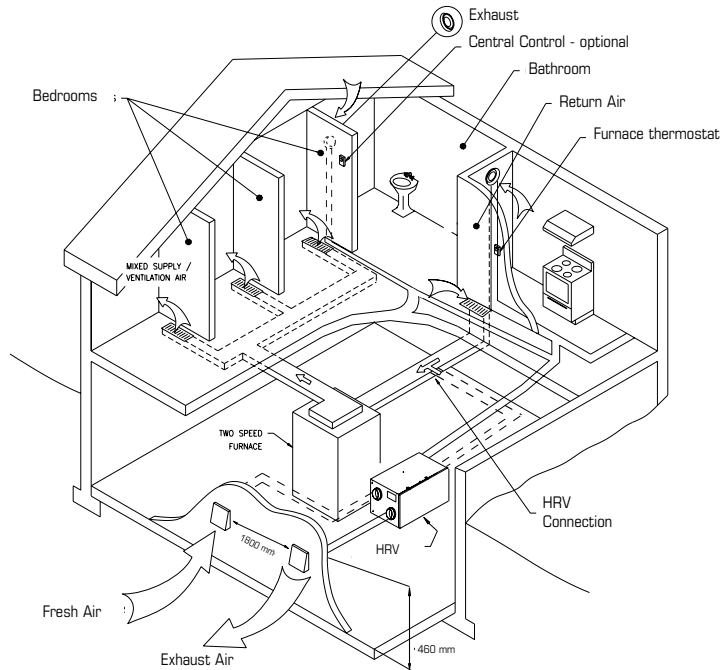
DIRECT CONNECTION of the SUPPLY AIR STREAM to the FURNACE COLD AIR RETURN
(Stale air drawn from key areas of home)

Partially Dedicated System

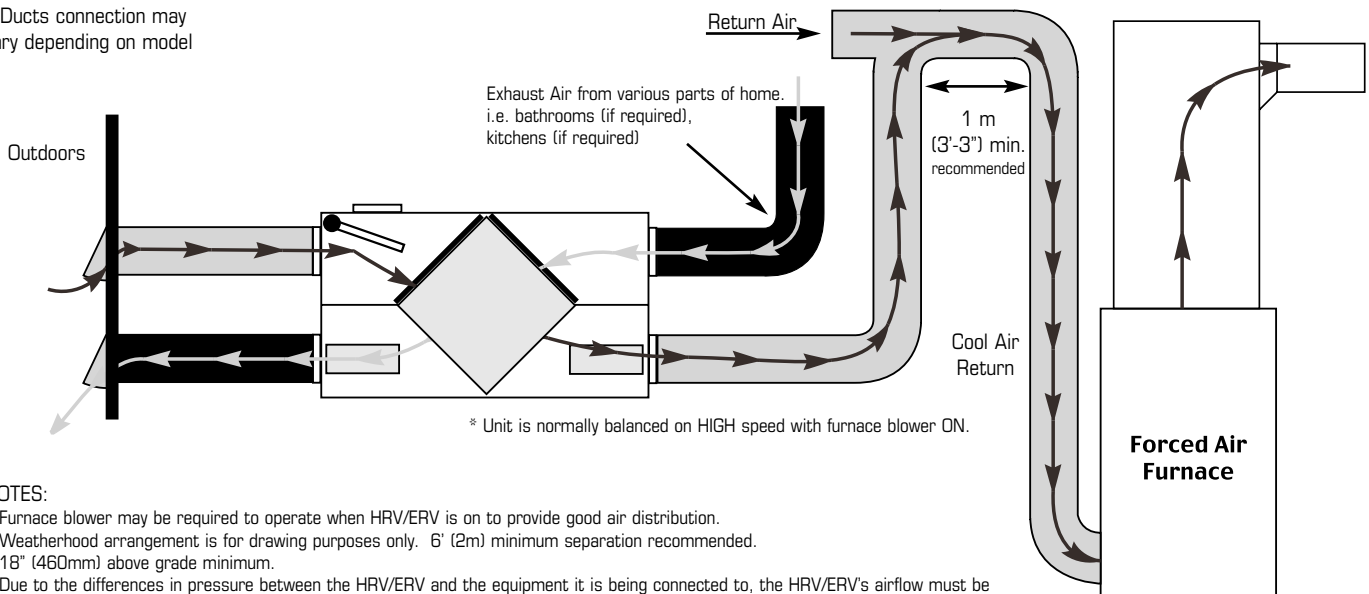
Stale air drawn from key areas of home (bathroom, kitchen, laundry)

Fresh air supplied to main living areas via the forced air system.

HRV/ERV must be balanced



* Ducts connection may vary depending on model



NOTES:

1. Furnace blower may be required to operate when HRV/ERV is on to provide good air distribution.
2. Weatherhood arrangement is for drawing purposes only. 6' (2m) minimum separation recommended. 18" (460mm) above grade minimum.
3. Due to the differences in pressure between the HRV/ERV and the equipment it is being connected to, the HRV/ERV's airflow must be confirmed on site, using the balancing procedure found in the installation manual.

INSTALLATION EXAMPLES (CONT'D)

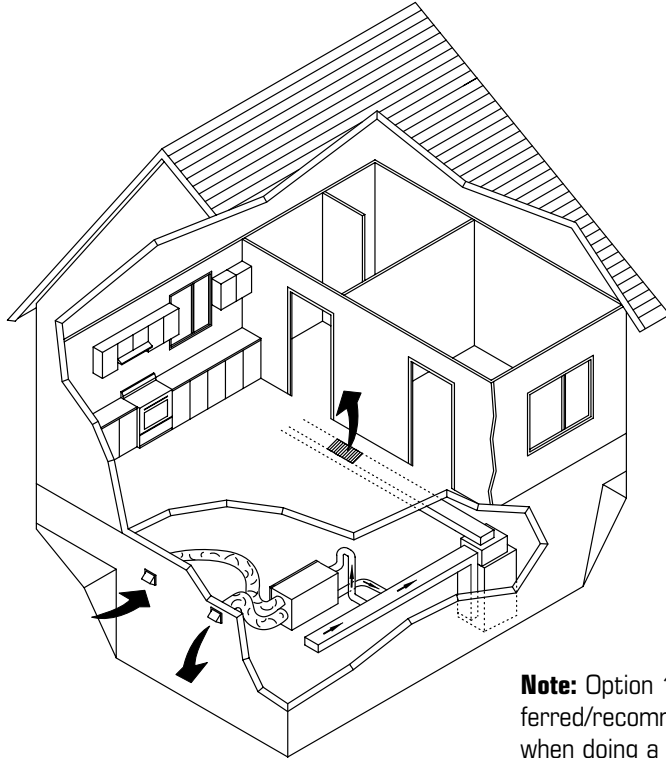
Example diagram only-duct configuration may change depending on model

DIRECT CONNECTION of both the HRV/ERV SUPPLY AIR STREAM and EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN

Simplified Installation

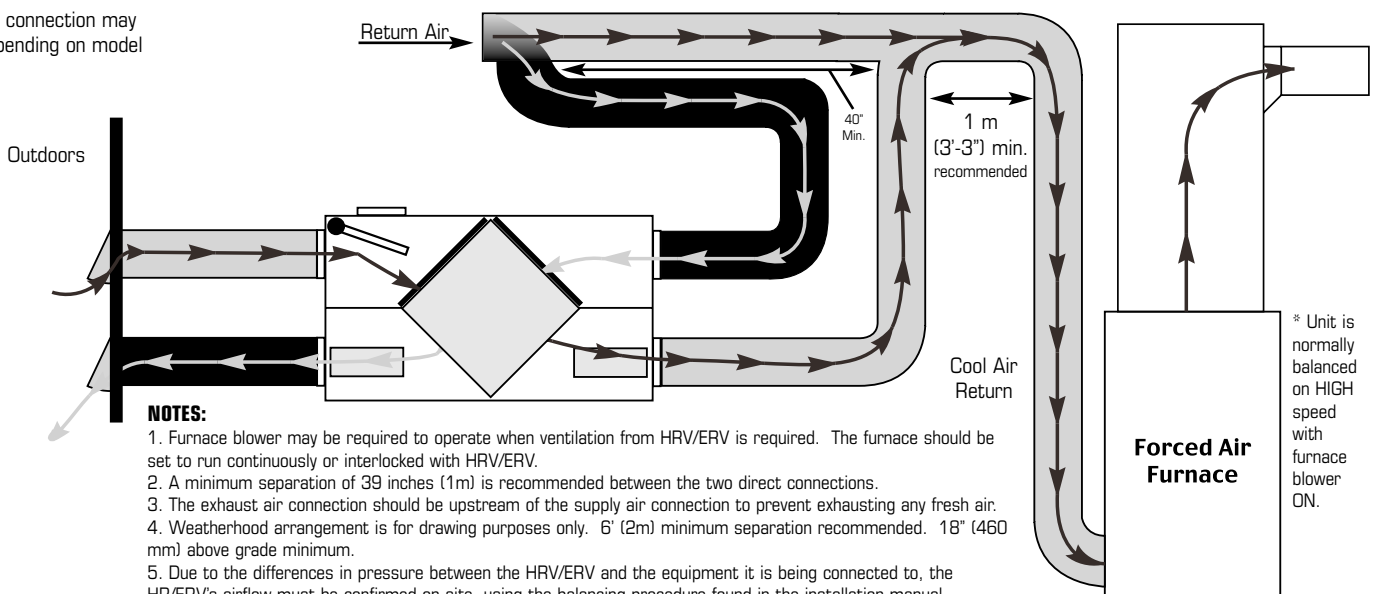
Option 1 (Return/Return Method)

- HRV/ERV must be balanced
- It is mandatory that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower
- Check local codes/authority having jurisdiction for acceptance



Note: Option 1 is the preferred/recommended method when doing a simplified installation

* Ducts connection may vary depending on model



INSTALLATION EXAMPLES (CONT'D)

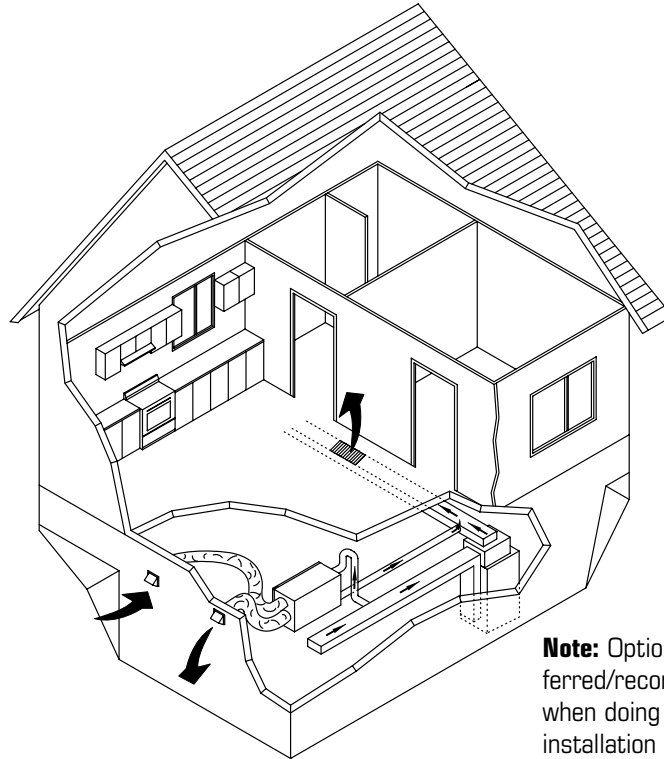
Example diagram only-duct configuration may change depending on model

DIRECT CONNECTION of both the HRV/ERV SUPPLY AIR STREAM & EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN & SUPPLY AIR SIDE

Simplified Installation

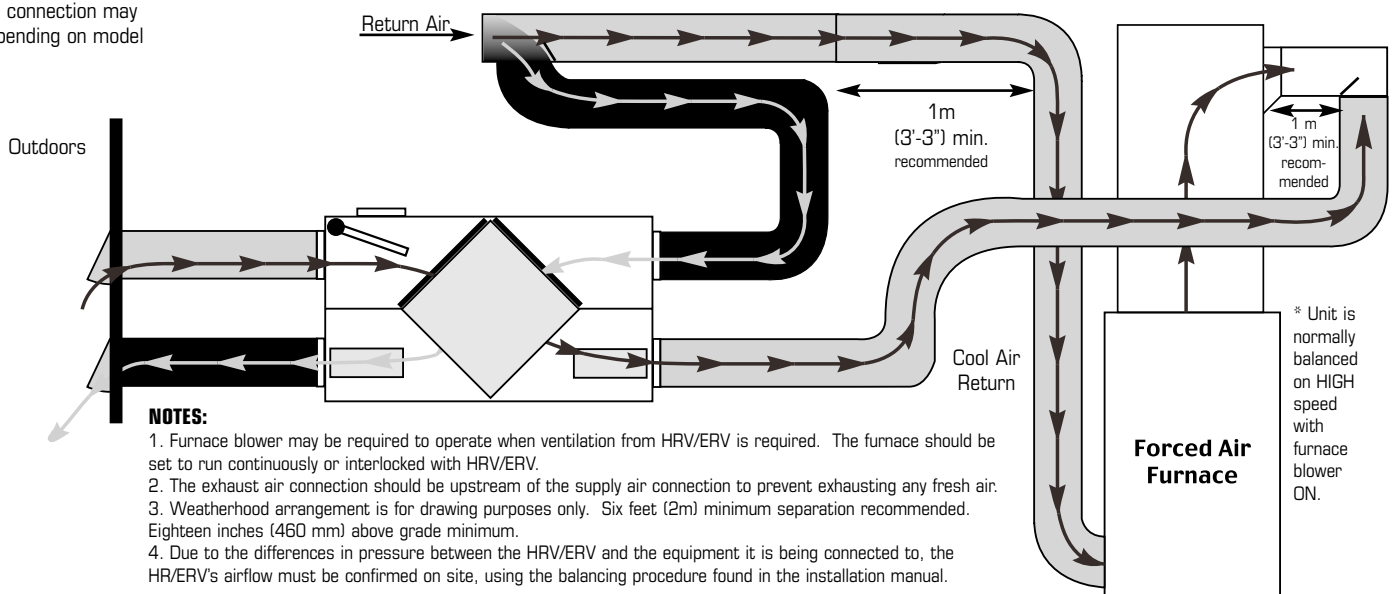
Option 2 (Supply/Return Method)

- HRV/ERV must be balanced
- It is recommended that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower
- Check local codes /authority having jurisdiction for acceptance



Note: Option 1 is the preferred/recommended method when doing a simplified installation

* Ducts connection may vary depending on model



AIR FLOW BALANCING

CAUTION

- If the unit's airflows are not properly balanced...
 - The unit may not operate at its maximum efficiency.
 - Heat recovery core damage may occur.
 - The unit's use could cause negative or positive pressure in your home causing cold air to enter or other combustible equipment to backdraft.
 - The unit may not defrost properly.

PITOT TUBE BALANCING PROCEDURE

PITOT TUBE

BALANCING PROCEDURE

The following is a method of field balancing an HRV/ERV using a Pitot tube, advantageous in situations when flow stations are not installed in the ductwork. Procedure should be performed with the HRV/ERV on high speed.

The first step is to operate all mechanical systems on high speed, which have an influence on the ventilation system, i.e. the HRV/ERV itself and the forced air furnace or air handler if applicable. This will provide the maximum pressure that the HRV/ERV will need to overcome, and allow for a more accurate balance of the unit.

Drill a small hole in the duct (about 3/16), three feet downstream of any elbows or bends, and one foot upstream of any elbows or bends. These are recommended distances but the actual installation may limit the amount of straight duct.

The Pitot tube should be connected to a magnehelic gauge or other manometer capable of reading from 0 to 0.25 in. (0-62 Pa) of water, preferably to 3 digits of resolution. The tube coming out of the top of the pitot is connected to the high pressure side of the gauge. The tube coming out of the side of the pitot is connected to the low pressure or reference side of the gauge.

Insert the Pitot tube into the duct; pointing the tip into the airflow. For general balancing it is sufficient to move the pitot tube around in the duct and take an average or typical reading. Repeat this procedure in the other (supply or return) duct. Determine which duct has the highest airflow (highest reading on the gauge). Reduce this airflow using either the electronic balancing system

(if applicable) (SHR-R & VHR-R) or damper. The flows should now be balanced. Actual airflow can be determined from the gauge reading. The value read on the gauge is called the velocity pressure. The Pitot tube comes with a chart that will give the air flow velocity based on the velocity pressure indicated by the gauge. This velocity will be in either feet per minute or meters per second. To determine the actual airflow, the velocity is multiplied by the cross sectional areas of the duct being measured.

This is an example for determining the airflow in a 6" duct. The Pitot tube reading was 0.025 inches of water. From the chart, this is 640 feet per minute.

The 6" diameter (D) duct has cross sectional area (A) of

$$A = 3.14 \times (D/24)^2$$

$$A = 3.14 \times (6/24)^2$$

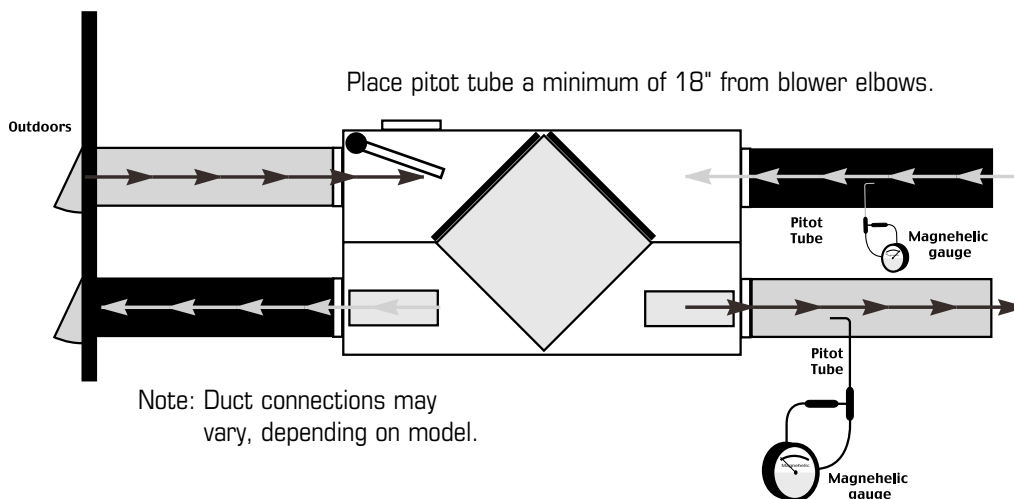
$$A = 0.196 \text{ or about } 0.2 \text{ ft}^2$$

The airflow is then: $640 \text{ ft/min} \times 0.2 \text{ ft}^2 = 128 \text{ cfm}$

For your convenience, the cross sectional area of some common round duct is listed below:

DUCT DIAM. (inches)	CROSS SECTION AREA (sq. ft.)
5	0.14
6	0.20
7	0.27
8	0.35

The accuracy of the airflow reading will be affected by how close to any elbows or bends the readings are taken. Accuracy can be increased by taking an average of multiple readings as outlined in the literature supplied with the Pitot tube.



* Pitot tube should be kept at least 12" away from fans elbows and dampers to ensure accurate reading.

* A calibration decal is included to place over electronic balancing system adjustments after it has been balanced.

- The balancing procedure consists of measuring the exhaust air leaving the system and the supply air entering the system and ensuring that these two are equal. A deviation of 10% or less is acceptable. In such cases, it is recommended to have a greater amount of exhaust air than supply air as so to increase the supply air's temperature.

AIR FLOW BALANCING (CONT'D)

AIRFLOW STATION (GRID) METHOD



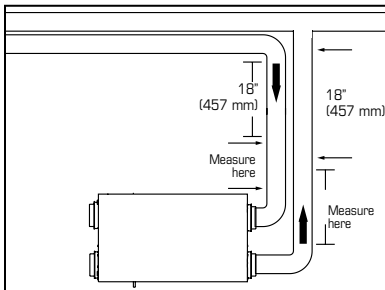
1 For this flow measuring station, cut the duct and place the flow measuring station between each station. Make sure that the flow measuring station's air direction arrow points in the direction of the airflow. Secure the flow measuring station with duct tape.



2 Before taking the reading, make sure that the magnehelic gauge is level and at 0. Refer to the flow measuring station's chart to determine your unit's airflow velocity.



3 Adjust the "Supply Air Out" damper until you reach the desired velocity. Follow the previous steps to adjust the "Exhaust Air Out" damper, if needed.



- To avoid airflow turbulence and incorrect readings, the airflow velocity should be measured on steel ducting a minimum of 18" (457 mm) from the unit or elbow and before any transition.

ADJUSTING AIRFLOWS

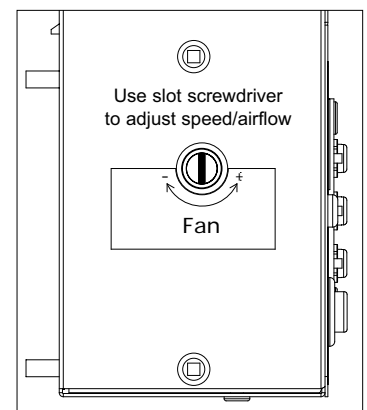
ELECTRONIC BALANCING MOTORS

[SHR 1505R(D), SHR 2005R, VHR 1405R & VHR 2005R only] -

Motors will be factory set at their full potential depending on speed selected.

When unit is installed you will need to balance the motors for proper operation.

Insert screwdriver and turn clockwise to slow down the motor, you will notice the motor changing speeds while performing this operation. Set to desired cfm.



MAINTENANCE

CAUTION MAKE SURE UNIT IS UNPLUGGED BEFORE ATTEMPTING ANY MAINTENANCE WORK

The following components should also be inspected regularly and well maintained.

PRACTICAL TIPS

- To prevent electrical shock, check that the unit is unplugged before doing any repairs or maintenance.
- A yearly inspection is recommended to ensure the efficiency and trouble-free use of your system. Run through the system and verify the different operating modes.

The motor - The motors are factory balanced and lubricated for life. They require no maintenance.

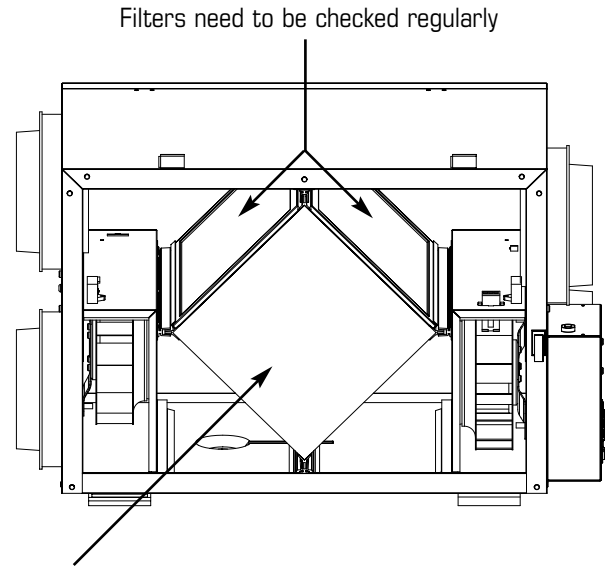
The unit - The inside of the unit should be vacuumed yearly. Be careful not to damage any of the mechanical components and electrical connections.

The drain pan and drain line - Units with drain lines should have their line and connection checked regularly.

Outside hoods - The outside hoods need to be checked every season to make sure there are no leaves or insects blocking the airflow. Check regularly that there are no pollutants near the intake hood. Make sure they are clear of any snow accumulation during the winter months.

FILTERS

The filters (2) need to be checked and cleaned every three months or when they appear dirty. Wash in warm sudsy water (mild detergent) or use a soft brush vacuum. The filters should be replaced when they can no longer be cleaned properly.



HEAT RECOVERY CORE

The heat recovery core needs to be checked and cleaned every six months. The core can be cleaned using a mild soap and water. Rinse thoroughly. Handle with care. Hot water and a strong detergent will damage the heat recovery core. It is recommended to clean the core in the summer or when the temperature is mild. Never clean the heat recovery core during winter.

Clean Core and Filters Every 3-6 Months.

Unplugged before doing any repairs or maintenance

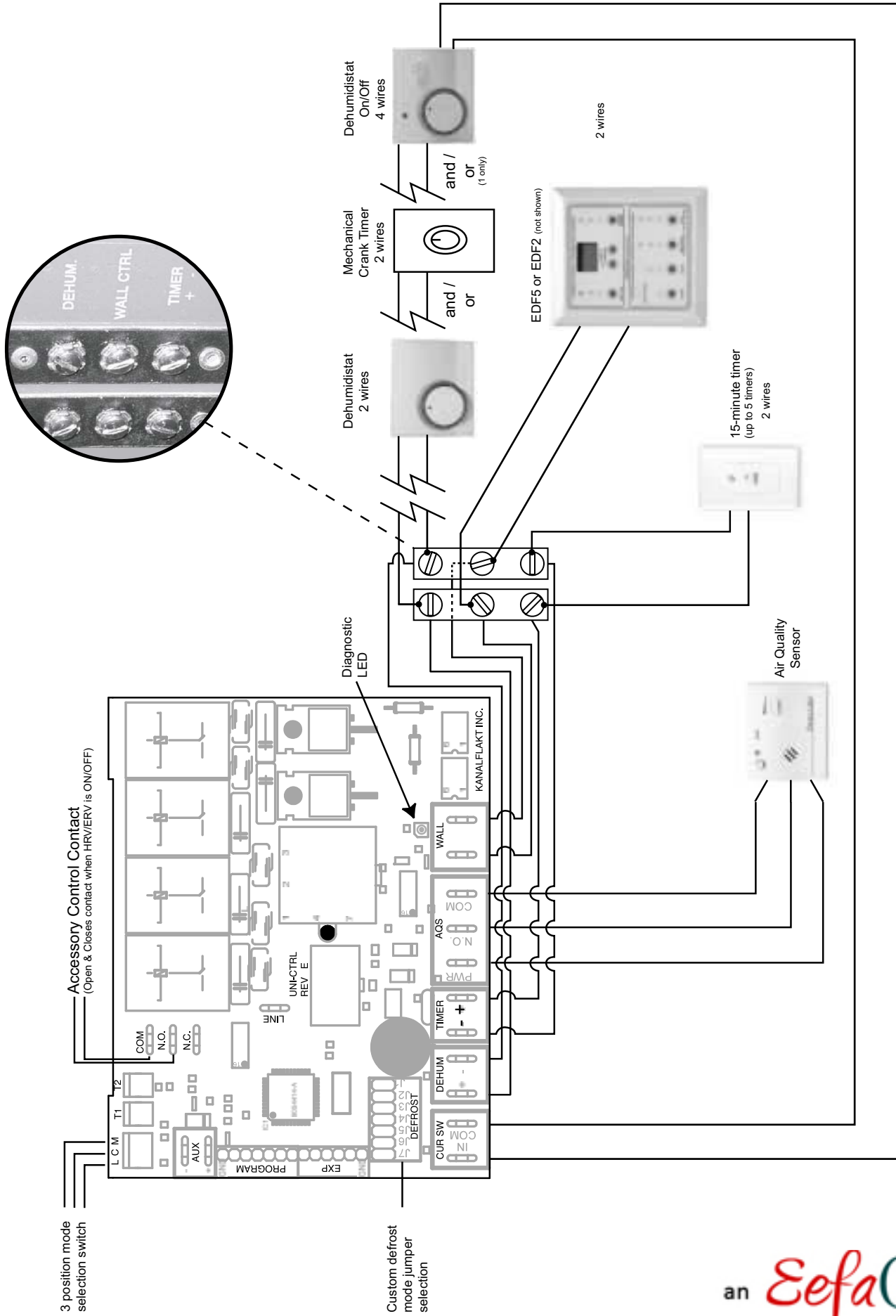
- Open access door.
- Carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel.
- Once removed from the cabinet remove filters.
- Wash core in warm soapy water (do not use dishwasher).
- Install the clean filters.
- Install clean core.

To Install the Clean Core and Filters.

- First mount the bottom flange of the core guide into the bottom channel approximately 1/4" (6mm).
- Mount the left or right side flange of the core guide approximately 1/4" (6mm) followed by the other side.
- Mount the top flange of the core guide into the top channel approximately 1/4" (6mm).
- With all four corners in place and the core straight and even, push hard in the center of the core until the core stops on the back of the cabinet.

NOTE: Some products may not be exactly as illustrated in Installation, Operation and Maintenance manual.

ELECTRICAL CONNECTIONS



* Wiring diagram of complete unit inside of access panel

ELECTRICAL CONNECTIONS (CONT'D)

ELECTRICAL CONNECTION TO A FURNACE

PRACTICAL TIPS

Caution:

- Never connect a 120 volt AC circuit to the terminals of the Accessory Control Contacts. Only use the low voltage class 2 circuit of the furnace blower control.

For a Furnace Connected to a Cooling System:

- On some older thermostats, energizing the R and G terminals at the furnace has the effect of energizing Y at the thermostat and thereby turning on the cooling system. If you identify this type of thermostat, you must use the "Alternate Furnace Interlock Wiring".

