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Optima Series



OPERATING, MAINTAINING & INSTALLING YOUR HEAT RECOVERY VENTILATOR

FOR MODELS OP154, OP176

- * **LEAVE THIS DOCUMENT WITH THE HOMEOWNER**
Specifications, dimensions and ratings may change without notice
as a result of ongoing product development and improvements.

TABLE OF CONTENTS

1.	HOW THE NU-AIR SYSTEM WORKS	3
2.	INSTALLATION.....	3
2.1.	Installer's Responsibilities	3
2.2.	Installation System Options	3
2.3.	Ducting To The Outside	6
2.4.	Mounting & Noise Control	7
2.5.	Port Configurations	7
2.6.	Ductwork	8
2.7.	Drain Connections	8
2.8.	Balancing The System	9
3.	CIRCUIT OVERLOAD PROTECTION	10
4.	CONTROLS.....	11
4.1	Optima HRV Digital Wall Control (Part #OPT-1a).....	11
4.2	Windsor Wall Control (Part #WIN-1).....	13
4.3	Standard Dehumidistat (Part #DSTAT-1)	13
4.4	Windsor Timer (Part #WIN-20).....	14
4.5	Spring Wound Timers.....	14
4.6	Remote On/Off Switching	14
4.7	Furnace Interlock	15
4.8	Furnace Interlock for HVAC Systems with condenser units	16
5.	START-UP	17
6.	MAINTENANCE.....	17
	Filters.....	16
	Fans.....	16
	Condensate Drain	16
	Core.....	16
	Exterior Hoods: Weather hoods.....	17
	Grills and Ductwork.....	17
7.	ANNUAL SERVICING:	18
8.	CIRCUIT BOARD DIAGNOSTIC LED.....	18
9.	TROUBLE SHOOTING:.....	19
10.	ELECTRICAL SCHEMATICS	20
11.	WARRANTIES.....	23

1. HOW THE NU-AIR SYSTEM WORKS

- A. Powerful, centrifugal blowers bring fresh air into your home while an equal amount of stale, humid air is exhausted to the outside. This is **Nu-Air**'s balanced central ventilation system.
- B. Incoming fresh air is filtered before flowing through the heat exchange core.
- C. Stale, humid air flows through the cross-flow heat exchanger and transfers the heat to the incoming fresh air.
- D. Warm fresh air is distributed to each room of the house through an independent ductwork system.

2. INSTALLATION

2.1. INSTALLER'S RESPONSIBILITIES

Installers are responsible for the performance of the ventilation system and for ensuring that all codes and standards are met.

- Do not mount the fresh air supply near a source of contaminated air such as automotive exhaust, gas or propane exhaust or oil tanks.
- Do not hook a dryer exhaust to an HRV.
- Combustion appliances such as furnaces and hot water heaters must not draw combustion air directly from an HRV.
- Do not connect a range hood to any part of this system.
- Do not install in attics or other unconditioned spaces (min. 16° C).
- Do not install in enclosed garages.

2.2. INSTALLATION SYSTEM OPTIONS

Before installing your HRV, please read these instructions for correct installation. The **Nu-Air** HRV is a self-contained system that is ready to be installed.

There are three commonly used and approved methods of installation.

2.2.1. THE FULLY DUCTED SYSTEM

This system uses an independent duct system for supply and exhaust air. The HRV is controlled independently of all other equipment.

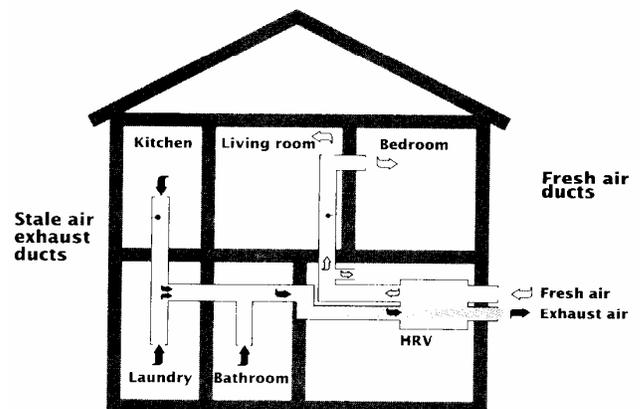
The best results are achieved when:

- Each room of the space is serviced with a vent mounted in the ceiling or high on an interior wall (within 12" of the ceiling).
- Vents are located deep within a room, where they will not short-circuit or create an uncomfortable draft.

Areas typically serviced by Exhaust Air:

Laundry Rooms, Kitchens, Bathrooms, other wet rooms.

An HRV with direct ductwork



Note. Kitchen exhaust grills should be equipped with a grease filter and must be located at least 3 ft. horizontally in all directions from the surface of the range extended to the ceiling.

Areas typically serviced by Fresh Air: Bedrooms, Living Rooms, Dining Areas, and Recreation Areas.

2.2.2. THE EXTENDED EXHAUST SYSTEM

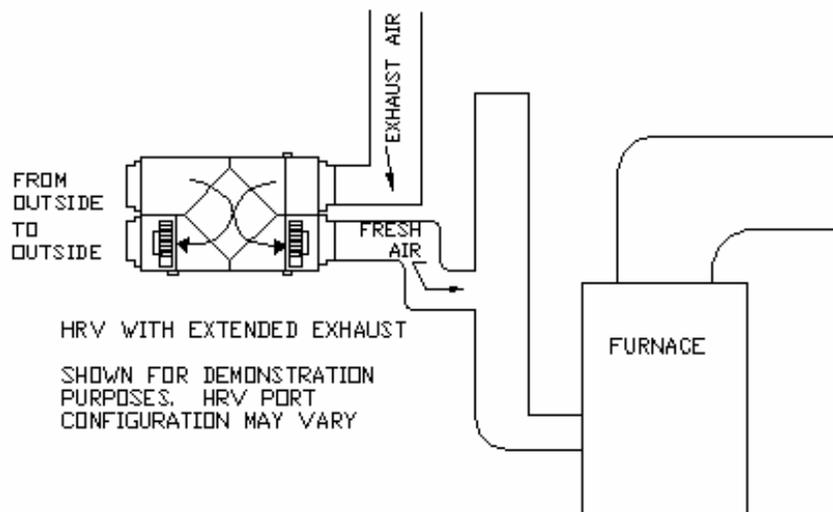
This system uses the HRV in conjunction with a forced air furnace distribution system. In this system the HRV supply air to the house is introduced into the return duct of the forced air furnace. Separate, additional ductwork is used to transfer stale air from the wet rooms to the HRV.

2.2.2.1. EXTENDED SYSTEM, CONTINUOUS VENTILATION

The furnace fan may not need to run continuously with this system. Check local code requirements. For improved supply air distribution during continuous ventilation mode, the furnace may be interlocked to the HRV. See Section 4.7 and 4.8.

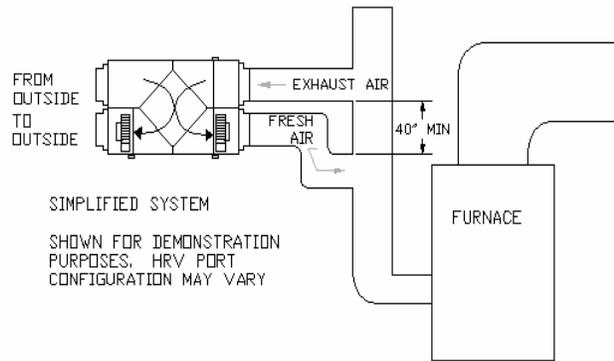
2.2.2.2. EXTENDED SYSTEM, INTERMITTENT VENTILATION

If the HRV is operated intermittently, the furnace fan should be interlocked with the HRV for good distribution of supply air during high-speed ventilation conditions.



2.2.3 THE SIMPLIFIED SYSTEM

This system uses the furnace's return duct for both supply air distribution and exhaust air collection. The exhaust air connection must be a minimum of 40 inches upstream of the supply air connection to avoid short-circuiting of the fresh air.



2.2.3.1 SIMPLIFIED SYSTEM - CONTINUOUS VENTILATION

The furnace fan **MUST** run continuously with this system for proper supply air distribution during continuous ventilation mode. Interlock the furnace and HRV in accordance with Sections 4.7 and 4.8.

2.2.3.2 SIMPLIFIED SYSTEM - INTERMITTENT OPERATION

If the HRV is operated intermittently, the furnace fan should be interlocked with the HRV for good distribution of supply air during high-speed ventilation conditions.

2.2.4 DUCTING FOR ENHANCED AIR CIRCULATION WITH WOOD STOVE OR FIREPLACE - (ONLY AVAILABLE FOR THE OP176)

The two back ports (defrost in and defrost out) can be ducted to other areas of the space and can offer many unique air movement solutions. One common approach is to duct the "defrost intake" to a room with a wood stove or fireplace to help circulate that heat from that area to other rooms in the space. Alternately the rear ports can be left unducted with only a grill covering to draw from and exhaust to the mechanical room. (**Refer to section 2.5 for port configurations**)

NOTES:

- 1) When selecting an installation option, consideration should be given to the increased electrical consumption of the furnace fan.
- 2) The HRV fresh air supply duct to the return air plenum shall be connected at a sufficient distance upstream of the plenum connection to the furnace. This allows proper mixing and ensures appropriate air temperature at the furnace heat exchanger in cold weather. For fuel-fired mid and high efficiency furnaces a minimum temperature of 15.5° C (60° F) is recommended at the heat exchanger. (Check the furnace manufacturer's specifications).

Installation Supplies, Standard Issue Items:

The HRV comes equipped with:

- Filters
- Anti-Vibration Straps
- Heat Recovery Core
- Drain Hose Assembly
- Connections for timers, remote controls, furnace interlock.

2.2.5 CONTROL OPTIONS (SOLD SEPARATELY)

- Optima digital control (OPT-1a)
- Windsor 20 minute timers - up to 6 each system (WIN-20)
- Windsor mechanical control (WIN-1)

2.3. DUCTING TO THE OUTSIDE

Between the weather hoods and the HRV you must use fully insulated ducting with an integrated **vapour** barrier. Insulated ducting with an integrated **vapour** barrier must also be used on all runs passing through unheated areas. This will avoid condensation problems and energy losses.

The minimum RSI value of insulation should equal that of the local building codes.

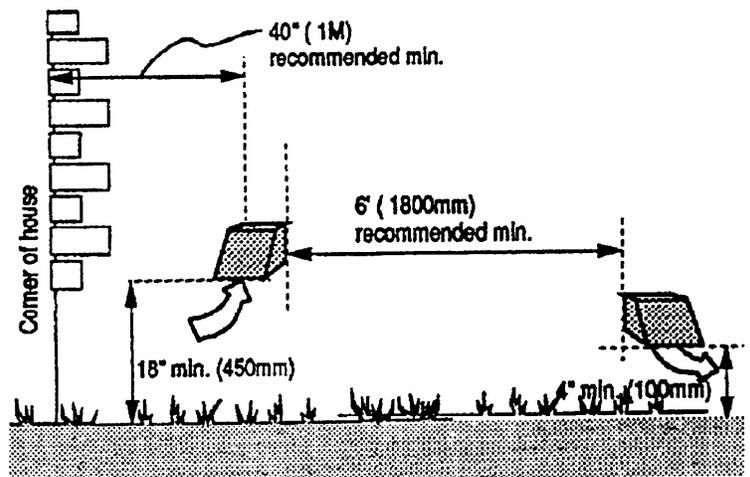
2.3.1. WEATHER HOODS

- Insulated flex duct slides over the galvanized sleeve of the weather hood.
- Use sheathing tape (red) to join the inner duct to the hood's sleeve.
- Tape the **vapour** barrier to back of the hood without compressing the insulation.
- Caulk or foam seal around the collars and hoods to eliminate air and water leaks.
- Locate the hoods for easy access to the bird screen for cleaning purposes.

Insulated duct runs connecting the weather hoods to the HRV should be as short as possible to minimize airflow restrictions. Avoid sharp bends and stretch out the inner lining of the flex duct as much as possible to reduce static pressure and maximize airflow. For runs over 12' increase flex to next size up.

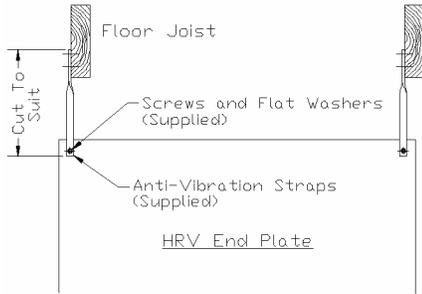
2.3.1.1. LOCATING THE WEATHER HOODS

There should be a minimum of 6' (feet) of separation between the fresh air and exhaust hoods. Supply hoods should be a minimum of 18" (inches) above the ground level. Exhaust hoods should be at least 4" (inches) above the ground level. Holes through the wall should be 1" larger than the collar on the hood. Fresh air hoods must be 3' away from any other appliance exhaust vent or furnace vent.



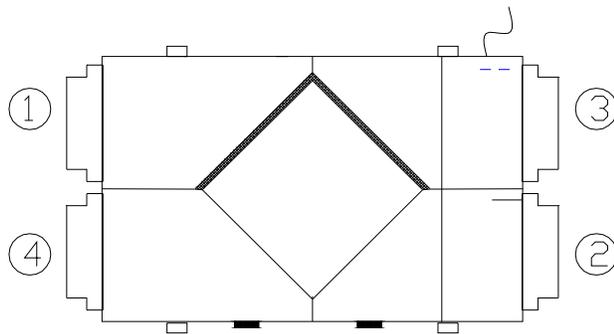
In addition ASHRAE Standard 62-99 recommends the following. Ventilation systems should be designed to prevent re-entrainment of exhaust contaminants, condensation or freeze-ups and growth of microorganisms. Make-up air inlets and exhaust air outlets shall be located to avoid contamination of the makeup air. Contaminants from sources such as cooling towers, sanitary vents, vehicle exhaust, and street traffic should be avoided.

2.4. MOUNTING & NOISE CONTROL



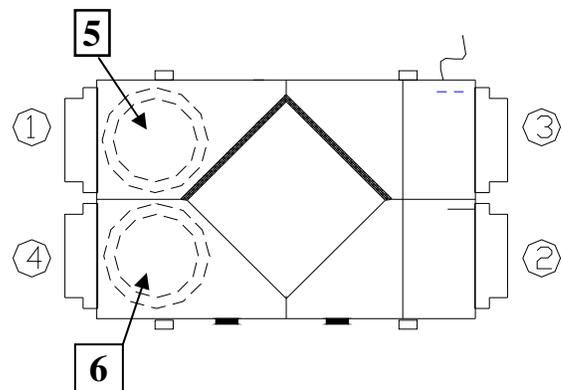
For maximum efficiency, the HRV should be installed in a heated area. The HRV is designed to be hung from the ceiling by way of the anti-vibration straps supplied. Avoid hanging the HRV directly below a bedroom or other quiet area.

2.5. PORT CONFIGURATIONS



1. Insulated flex pipe
2. Non insulated pipe
3. Non insulated pipe
4. Insulated flex pipe

OP154



- 1 - FROM OUTSIDE
- 2 - TO SPACE
- 3 - FROM SPACE
- 4 - TO OUTSIDE
- 5 - DEFROST IN
- 6 - DEFROST OUT

OP176

CONNECTING TO OTHER EQUIPMENT

Your **Nu-Air** HRV is not intended to be connected to other equipment or appliances. Interconnection with a forced air furnace duct system is permissible, refer to appropriate manual sections.

2.6. DUCTWORK

Duct runs should be straight with a minimum of bends and elbows. Joints should be tight fitting and sealed with duct tape or duct sealer.

RECOMMENDATION: Use galvanized duct whenever possible. Although flexible duct can be used, its use should be restricted to areas indicated (outside hoods and unheated spaces).

Ducting must be supported according to the manufacturers specified hanger system and intervals.

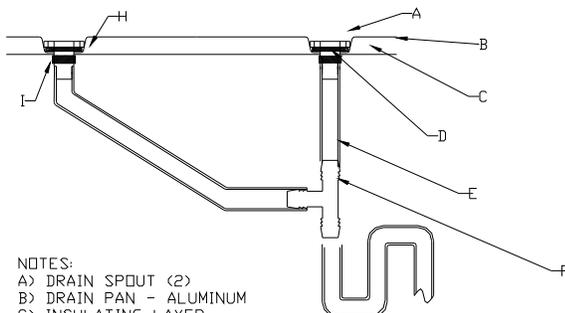
RECOMMENDATION: A qualified person should design the duct system.

2.7. DRAIN CONNECTIONS

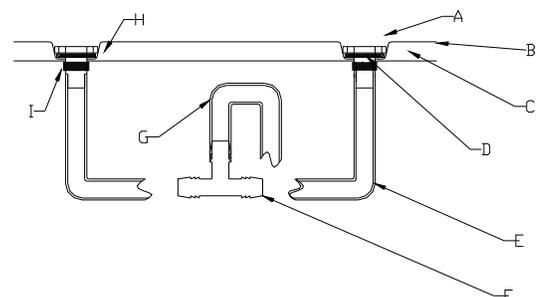
Access to a drain or sump is required to handle the HRV condensate. Care should be taken to run the condensate tube where it cannot freeze.

For best results, **Nu-Air** recommends the following steps be followed when installing drain kits on residential HRV's.

1. Apply the O-ring supplied to the flange of each drain spout (A)
2. Insert the drain spouts through the holes in the drain pan (B)
3. Use the speed nut to tightly secure the drain spout
4. Cut two lengths of drain hose (E) long enough to avoid kinking
5. Attach the hose to the drain spout by sliding it over the spout until it is tight to the bottom of the speed nut. Repeat for the other side
6. Secure the hose to the spout with the plastic tie wraps (D)
7. Install the Tee (F) in either of the two ways shown in the drawings below
8. Attach the free end of the hose to the left fitting. Repeat for the other side
9. Use the remaining hose to form a "P" trap and terminate at the top of the tee
10. Pour approximately one cup of water into the drain assembly to form an air seal. This prevents gasses from being drawn into the HRV

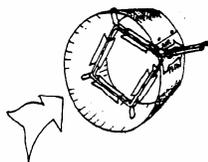


- NOTES:
- A) DRAIN SPOUT (2)
 - B) DRAIN PAN - ALUMINUM
 - C) INSULATING LAYER
 - D) TIE-RING (2)
 - E) DRAIN HOSE 1/2" ID, (10 feet)
 - F) TEE FITTING, BARBED
 - G) "P" TRAP
 - H) EMBOSS (2)
 - I) SPEED NUT (2)



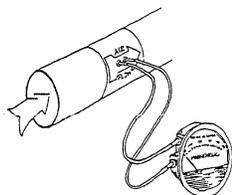
2.8. BALANCING THE SYSTEM

Balanced air flow between the supply and exhaust air streams is essential to the performance of an HRV. The equipment we recommend for balancing your system is easy to use, reliable and one of the most cost efficient flow balancing, measuring systems available.



Once the HRV system is installed and the vapour barrier is completed, ensure the following:

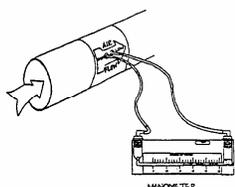
- Close all windows, doors and fireplace dampers
- Turn off any exhaust systems such as dryers, range hoods, bath fans and central vacuums.
- The forced air furnaces should operate at continuous low speed.
- Force the HRV into High speed using the dehumidistat



To balance the HRV, you will need a device to measure air flow. It is recommended to use either a magnehelic gauge or a Pitot tube air meter, both of which are available from Nu-Air. Depending on the device you are using, follow one of the two procedures below:

MAGNEHELIC GAUGE:

1. Disengage one end of the exhaust flexible duct connector in the main duct before any branch ducts and push the duct back into itself. Insert the flow grid and tape the joint between the flow grid and ductwork.
2. Ensure the HRV is on high speed. Mount the magnehelic gauge level and plumb. Join the hoses from the flow grid to the magnehelic gauge. The needle of the magnehelic gauge should read positively. Switch hose connections if the needle falls below zero.
3. Record reading from gauge. Repeat the procedure for the supply duct.
4. One duct will typically have a higher airflow than the other. Set the “High Speed Balance switch” on the front of the machine to tell the HRV which was higher – the supply or exhaust duct.
5. Re-insert the flow grid into the duct having the higher airflow. Use the Speed adjust (Increase/Decrease buttons) to match the airflow in this duct to the other within +/- 10%.



AIR METER:

1. Drill a 1/4” hole in both the supply and exhaust ducts on the warm-side of the machine at least 12” away from the HRV and any elbows, tees, etc.
2. Ensure the HRV is on high speed.
3. Take a pressure reading in each duct and record the results.
4. One duct will typically have a higher airflow than the other. Set the “High Speed Balance switch” on the front of the machine to tell the HRV which was higher – the supply or exhaust duct.
5. Re-insert the pitot tube into the duct having the higher airflow. Use the Speed adjust (Increase/Decrease buttons) to lower the airflow in this duct to match the other within +/- 10%.
6. Use tape to reseal the holes.
7. To convert pressure readings to airflow (cfm or L/s) refer to the instructions and table included with the air meter.

For residential applications you should have a minimum ventilation capacity of 10 cfm (5 L/s) per room. The chart that accompanies the flow grid calibrates pressure readings to airflow.

Refer to ASHRAE Standard 62 for acceptable ventilation rates in commercial buildings.



CALCULATING TVC (TOTAL VENTILATION CAPACITY) FOR RESIDENTIAL APPLICATIONS:

- 20 cfm for the master bedroom
- 20 cfm for an unfinished basement
- 10 cfm for each other room in the house

Add these together to arrive at your TVC.

This method is called the “Room Count Method” and is part of CSA F326 (Residential Mechanical Ventilation Systems). 0.3 air changes per hour is no longer used.

Air meter available from Nu-Air wholesalers. (Part #100460)

Balance the HRV in less than five minutes.

3. OPERATION FEATURES

Circuit Overload Protection

Your Optima HRV is equipped with an electronic self-resetting fuse to protect the PC board and controls against overload/short-circuiting in the event of improper wiring of remote controls.

In the event of a short circuit, check your wiring connections, make the necessary changes and wait 1- 2 minutes for electronic fuse to reset.

NOTE: Unplug the HRV for 10 seconds to reset the microprocessor whenever changes are made to 24V control wiring.

Exclusive luxury features include:

INTELLI-TEMP™ - Integrated on-board sensors

- Thermistor on board monitors outdoor temperature
- Automatically switches to Arctic defrost mode when outdoor temperature is below -28C. No freeze ups!
- Automatic summer mode when outdoor temperature is above 25C for maximum comfort and reliability.

EASY-LOC™ - Built-in furnace interlock

- Normal mode: furnace blower runs continuously in both high and low speeds – maximum air distribution
- Conservation mode: furnace blower runs only when the HRV is in high speed – energy savings
- Integrates easily with cooling systems: Eliminates the need for an isolation relay (internally isolates Y & G in mercury t-stats)

EN-MISER™ - HRV balancing system

- Variable speed balancing system cuts utility bills
- Each motor high speed can be adjusted individually using easily accessible pushbuttons

6-PORT system on OP176 for circulating fireplace and woodstove heat throughout the home.

4. CONTROLS

Your machine is equipped for remote controls. Options include humidity sensing, on-off control, intermittent, continuous, and recirculation modes. High speed can be induced from the main controller or timer (s). You can also interlock the furnace blower to the HRV. Various means of controlling the system are described below.

4.1 OPTIMA HRV DIGITAL WALL CONTROL (PART #OPT-1A)

Refer to Section 10, Wiring Diagram # 10-2.

The Optima digital control offers advanced functionality with intuitive control operation, electronic dehumidistat and easy to read digital display in an unobtrusive and attractive design.

The Optima LCD displays the HRV operating mode, fan speed, room RH% and set point and filter change notification.

All functions are selected by a button type joystick controller (up/down /left/right). French and English language options are selectable.

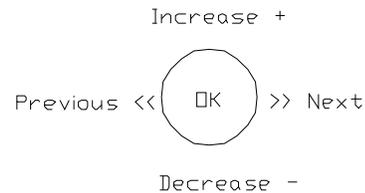
Operating modes available:

- **Off** - Fans off, outside air damper on, timers are disabled.
- **Continuous** – Fans in low speed unless dehumidistat or timer calls for high speed.
- **Standby** - Low speed disabled. Timers and de-humidistat can engage high speed.
- **Circulation** - Fans in high speed, outside air damper on. Timers do not override (dehumidistats override).
- **20Low/40 Standby** - Fans cycle 20 minutes in low speed, 40 minutes standby. Only dehumidistat can override.
- **20 High/40 Circulate** - Fans cycle 20 minutes high speed, 40 minutes recirculation. No overrides.
- **Constant Low** - Fans in low speed ventilation mode and cannot be overridden by de-humidistat. Timers can override.
- **Constant High** - Fans in high speed ventilation mode regardless of other inputs.

CONTROLLER OPERATION

Changing the Operating Mode:

Press >> (Next) to enter the mode select menu. Press + (increase) or – (decrease) to scroll the available mode options. Press OK or wait two seconds to accept mode.



Humidity Set Point:

Set the LIMIT to the maximum value of relative humidity (%) you want to maintain in the room (40-60 recommended). When room air exceeds the LIMIT the HRV runs in high speed exchange. See mode descriptions for exceptions.

To set the LIMIT value press – (Decrease) to enter LIMIT adjust mode. Press + (Increase) or – (Decrease) to change the LIMIT value. Wait two seconds to accept the value.

Filter Status:

It is recommended that you check the filters of the HRV every 90 days. To see how many days left before a filter check is needed, press >> (Next) twice. To reset the filter change status press + (Increase) and >> (Next).

Language:

To change the display language press >> (Next) three times. Press + (Increase) or – (decrease) to toggle from English to French.

A four (4) conductor wire is needed for the OPT-1a

4.2 WINDSOR WALL CONTROL (PART #WIN-1)

Refer to Section 10, Wiring Diagram # 10-3.

The Windsor Dehumidistat Control incorporates a **3-position switch** from which the operator can select three operating modes:

1. OFF - disables all functions.
2. STANDBY - HRV is operating intermittently. High speed ventilation on demand from the dehumidistat, or remote timers. i.e. Auto-Off
3. CONTINUOUS - Continuous low speed ventilation. HRV cycles to high speed on demand from the dehumidistat or timers.

There is a two position switch:

Constant - locks the motors in High speed

Standard – normal operating mode enables functions 2 and 3 above.

Dehumidistat dial – Turn the dehumidistat dial to the desired setting. In standard operation, the dehumidistat will switch the HRV to high speed when the relative humidity of the air around it exceeds its set point. When the humidity falls below the set point, the machine drops out of high speed.

Lead wires from the control are colour coded as follows. Black/HUM, green/→→, yellow/→, red/12 VDC. Remove factory installed jumper wire at → and 12 VDC.

A four-conductor wire is used.

4.3 STANDARD DEHUMIDISTAT (PART #DSTAT-1)

With this basic control the system is designed to operate on a low speed for continuous ventilation with intermittent high speed for moisture or air quality control. Turn the dehumidistat dial to the desired setting. The dehumidistat will switch the HRV to high speed when the relative humidity of the air around it exceeds its set point. When the humidity falls below the set point, the machine drops out of high speed.

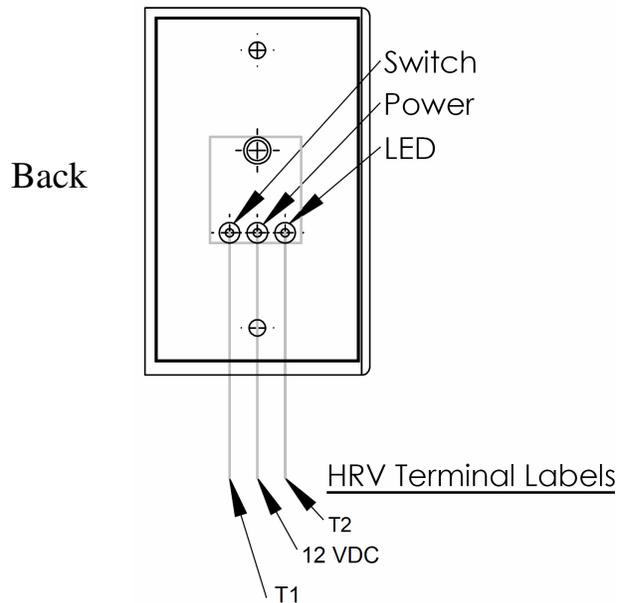
Connection may be made at points "HUM" & "12 VDC" to automatically control humidity. For continuous operation (low/high) use the factory installed jumper wire between "→" & 12 VDC. For intermittent operation (off/high) reposition the jumper wire between "→→" and 12 VDC.

Two-conductor wire is needed.

4.4 WINDSOR TIMER (PART #WIN-20)

Install in bathrooms, kitchens, workstations or other locations where high-speed ventilation control is needed. The machine will run at high speed for twenty (20) minutes and then return to its normal operating condition.

Up to six (6) timers can be connected in parallel. Match terminals on back of switch to terminals on HRV, "T1", "T2" and "12 VDC". When engaged, the HRV will run in high speed for twenty minutes. **Three-conductor wire is needed.**



4.5 SPRING WOUND TIMERS

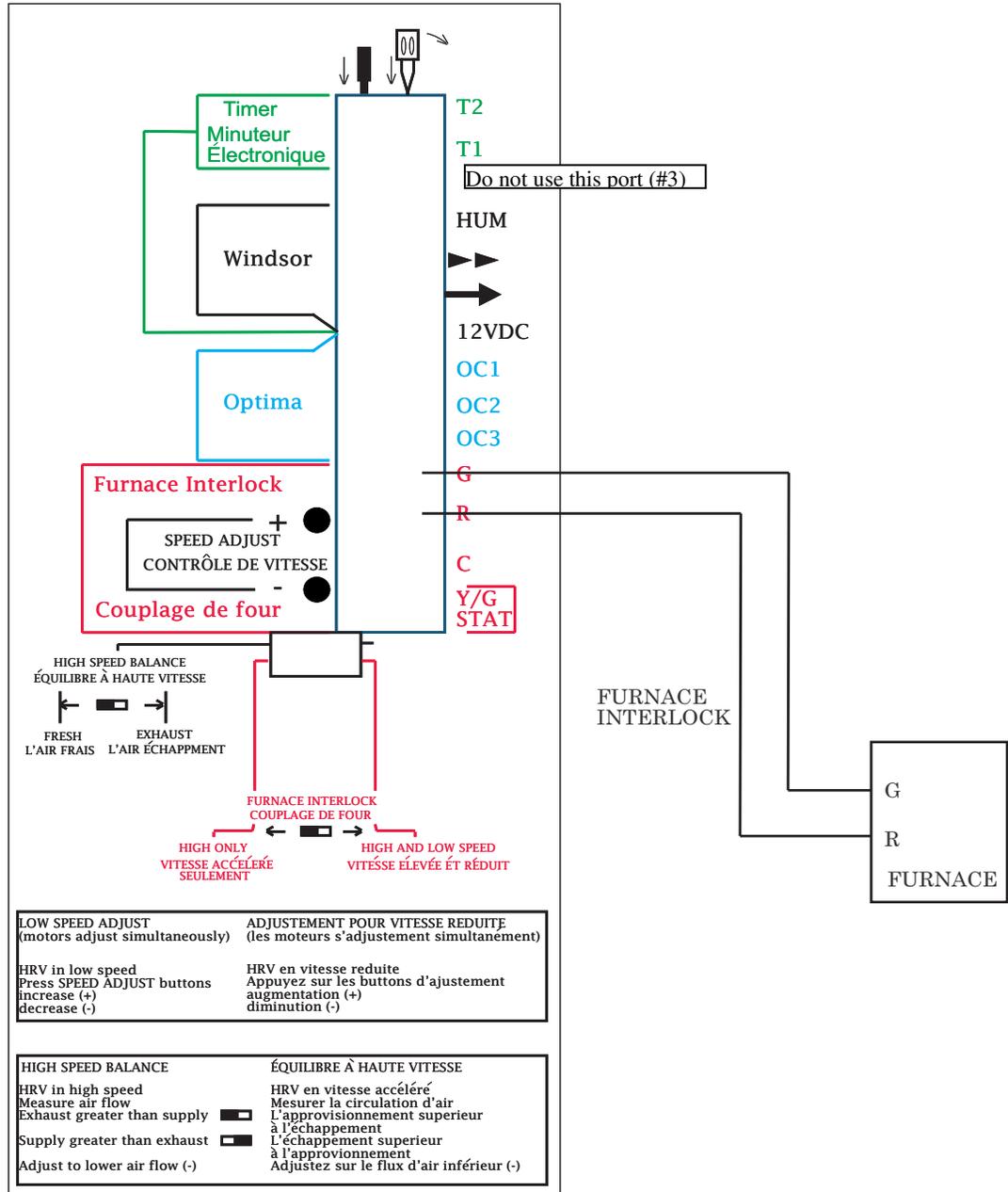
Connect to "HUM" and "12 VDC" using **two-conductor wire**. To select between continuous low speed operation and intermittent high speed when no other control is being used, use a jumper wire connection as described in section 4.3 above.

4.6 REMOTE ON/OFF SWITCHING

Basic, RNC type control can be achieved using a standard light switch. Add a jumper to 12 VDC and → for continuous low speed. For manually switched high speed, connect the switch between HUM and 12 VDC.

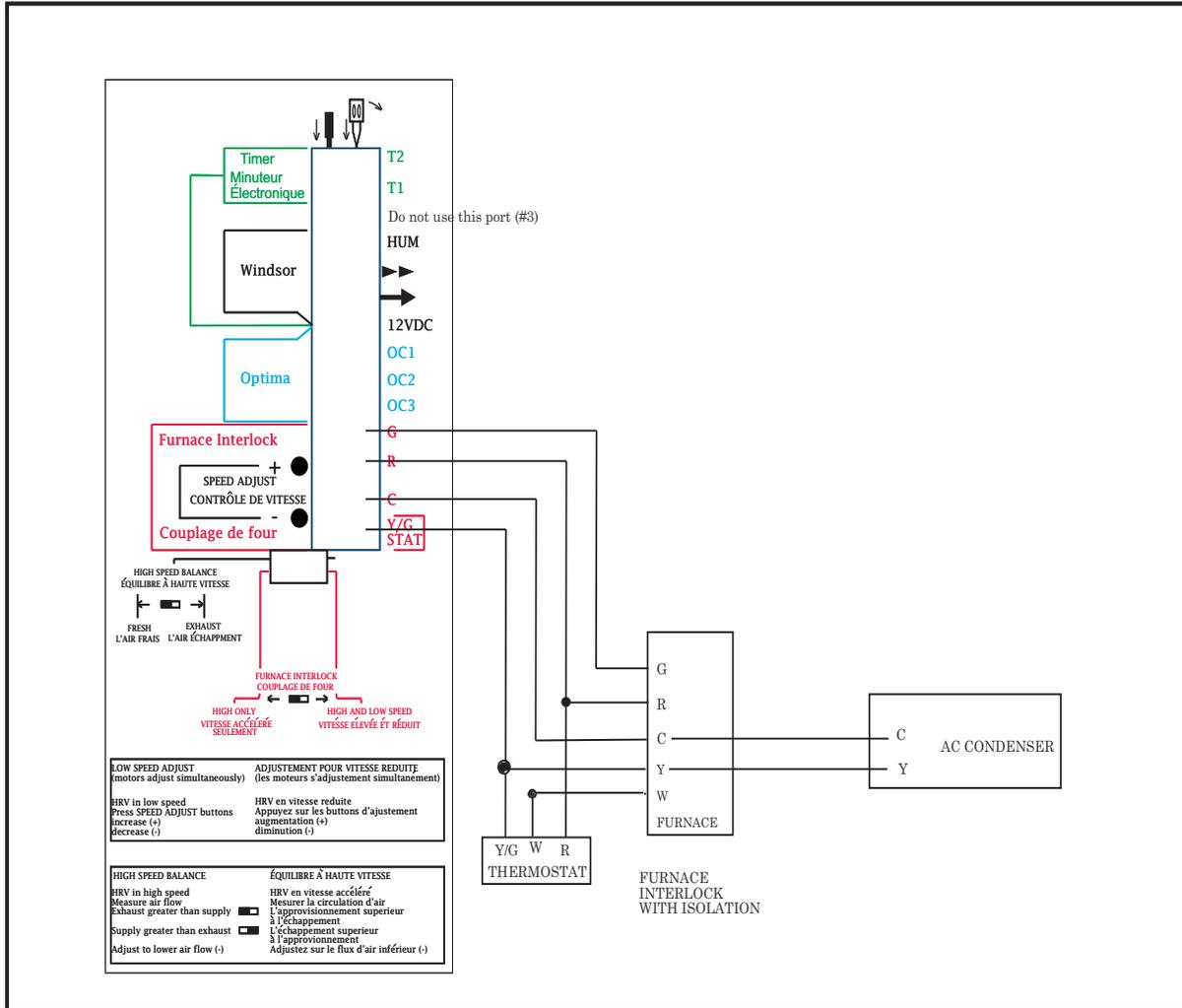
4.7 FURNACE INTERLOCK

To interlock the furnace blower with the HRV, supply 24 V in and out from the furnace controls R and G lines to HRV terminals labeled R and G. You have the option of interlocking the furnace whenever the HRV is ON or only when the HRV is in high speed. A slider switch on the HRV selects one of two modes. Refer to the diagram below:



4.8 FURNACE INTERLOCK FOR HVAC SYSTEMS WITH CONDENSER UNITS

On thermostats which do not isolate Y and G internally refer to the wiring diagram below.



5. START-UP

- Ensure the controls are connected in accordance with Section 4.
- For electrical hook-up, plug into a 120 volt receptacle.
- Ensure that the machine is piped to an adequate drainage source, i.e. through the drain hose supplied.

OPERATING HINTS

Set the **dehumidistat** at the desired level. Look for signs of excess humidity or dryness. *Let your windows be your guide.* As outdoor temperatures decrease – the comfortable humidity level also decreases.

- Winter Operation – 40% - 50% is recommended
- Spring/Fall Operation- 50% - 60% is recommended
- Summer Operation – On extremely humid days it is best not to run the HRV during the day. At night turn the machine on high speed using the dehumidistat. This will help keep your home cool and your basement fresh. In the morning, turn the machine off again. The normal summer setting is 55% - 75%.

6. MAINTENANCE

CAUTION: *Disconnect power before servicing.*

Filters:

Dirty filters can reduce ventilation efficiency, result in unbalanced airflow and damage or shorten the life of the motors. Clean every three months. Polyester filters should be replaced annually. Permanent electrostatic filters are available from your **Nu-Air** dealer. Filters remove easily by opening the front cover.

Fans:

When cleaning the filters, take the opportunity to vacuum any interior surfaces including the fan blades. No other service is required as these fans are designed to operate continuously without lubrication.

Condensate Drain:

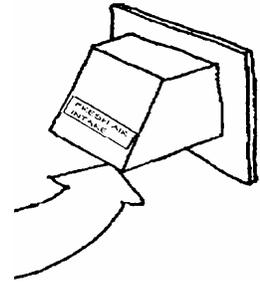
Twice per year wipe clean the condensate drain pan. Check the condensate drain and tubing to ensure they are free flowing. The tubing must have a "P" or loop that traps a quantity of water to prevent air from entering the HRV via this tubing.

Core:

The core (located behind the cover) should be removed and cleaned at least once a year, using a mild detergent in cold water (i.e. Arctic Power). To remove the cover of the machine, unlatch the two latches; slide the door to right to release from hinges.

Exterior Hoods: (Weather Hoods)

Regularly check the outside vents and clean any obstructions such as grass, leaves or other debris. Do not replace the screen with mesh smaller than 1/4" as this will restrict airflow. During winter operation, ensure snow and frost does not build up and restrict or block openings.



Grills & Duct Work:

Clean the grills when they are dusty or greasy with soap and water. Check for punctures in the insulation jacket on the fresh air and exhaust air ducts. Repair any punctures using foil tape.



7. ANNUAL SERVICING

Your HRV should undergo annual general servicing by an accredited contractor. This servicing should include the following:

- a) The six maintenance items above.
- b) A general check for proper operation. Controls and electrical connections should be inspected.
- c) Verification that intake and exhaust air flows are properly balanced with re-balancing as necessary.

8. CIRCUIT BOARD DIAGNOSTIC LED

OPERATING MODE	LED STATUS
Off	Flashes every 2 seconds
Standby	Rapid flash (strobe)
Low speed	Flashes every 1 second
High speed	Solid on

NOTE: ON INITIAL PLUG-IN THERE IS A 6 SECOND DIAGNOSTIC DELAY BEFORE CONTROLS CAN INITIATE OPERATION.

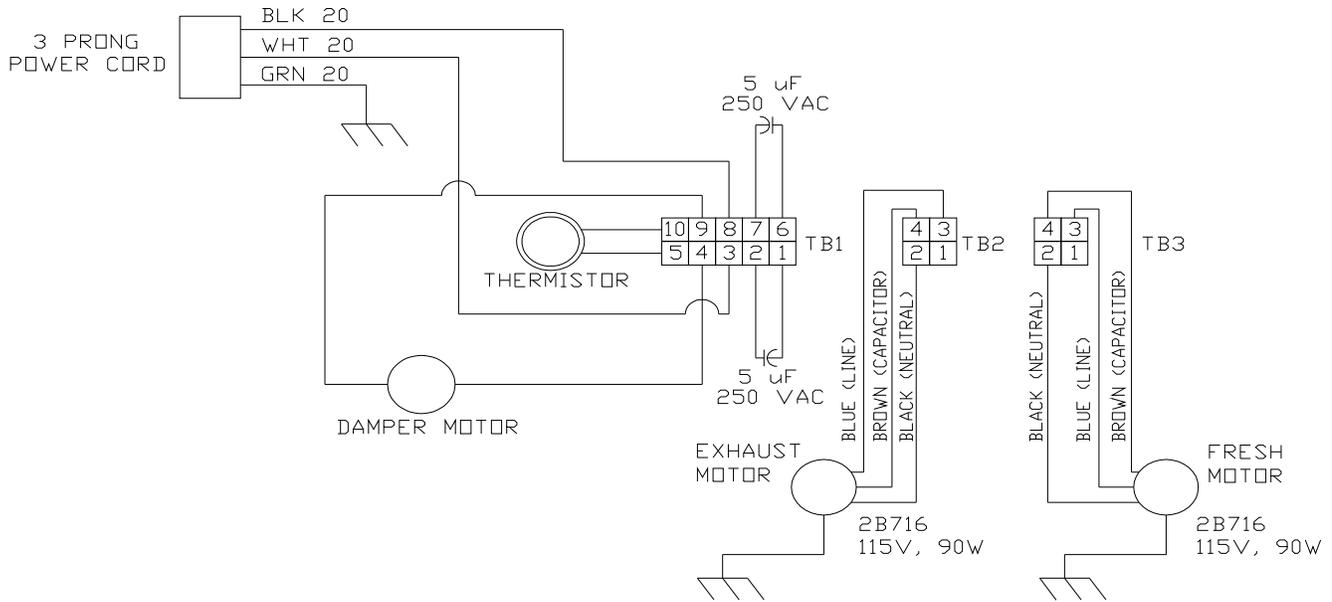
9. TROUBLE SHOOTING

SYMPTOM	EXPLANATION	ANSWER
Humidity levels too low.	<ul style="list-style-type: none"> • HRV air flows incorrectly balanced. • Dehumidistat control set too low. • Lifestyle of the resident(s). 	<ul style="list-style-type: none"> • Balance Air Flow(s). • Increase Dehumidistat. • Humidifiers may need to be added.
Humidity levels too high.	<ul style="list-style-type: none"> • HRV air flows incorrectly balanced. • HRV not sized properly. • High humidity areas not ventilated properly. • Lifestyle of resident(s). • Dehumidistat is not working. 	<ul style="list-style-type: none"> • Balance airflow. • Set dehumidistat. • Cover pools etc. when not in use. • Avoid hanging clothes to dry, storing wood and venting clothes dryer inside.
House dry/basement wet.	<ul style="list-style-type: none"> • High humidity during summer months 	<ul style="list-style-type: none"> • Install a programmable timer on 12-hour cycle. On at night. Off during the day. • Partially close some grills upstairs, open grills in basement
Dehumidistat is not working.	<ul style="list-style-type: none"> • Incorrect connection of outside low voltage wiring between HRV and Dehumidistat. 	<ul style="list-style-type: none"> • Check control wiring for short. • Check wall switch for correct connection. • Check wires are connected to proper terminals at the HRV.
Frosting up of HRV and/or Duct(s).	<ul style="list-style-type: none"> • HRV air flows incorrectly balanced. • HRV defrost system is not working. 	<ul style="list-style-type: none"> • Balance HRV. • Install back draft dampers. • Check defrost system. • Note minimal frost build up is expected on cores before unit initiates defrost cycle function.
Supply air feels cool.	<ul style="list-style-type: none"> • HRV air flows incorrectly balanced. • Improper location of supply grills. • Extremely cold outside temperatures. • Moving air feels cooler than it actually is. 	<ul style="list-style-type: none"> • Balance HRV. • Locate grills high on walls or in ceiling. • If supply air is installed into return line of furnace, furnace fan must run continuously on low speed.
Outside duct has ice build up or condensation.	<ul style="list-style-type: none"> • Improperly installed vapour barrier around insulated duct. 	<ul style="list-style-type: none"> • Tape all joints. • Ensure that vapour barrier is completely sealed and insulated.
Water in the bottom of HRV.	<ul style="list-style-type: none"> • Drain pans are plugged. • Incorrect connections of HRV's drain lines. • HRV is not level. • Drain lines plugged. • HRV heat exchange core improperly installed. 	<ul style="list-style-type: none"> • Look for kinks in the line. • Check water drain connections. • Ensure that water drains from pan.
Poor air flow(s)	<ul style="list-style-type: none"> • HRV airflow incorrectly balanced. • Filters need to be cleaned. • Mesh on outside hoods needs to be cleaned. • Grills are closed. • Inline dampers are closed. • Low power supply. • Wrong size ducting. • Under sized HRV. • HRV is not working. 	<ul style="list-style-type: none"> • Tape all joints. • Use proper air flow measuring equipment. • Open grills. • Remove obstructions in duct(s), hoods(s), and grill(s). • Balance air flows. • Clean filter. • Have a professional look at the system.

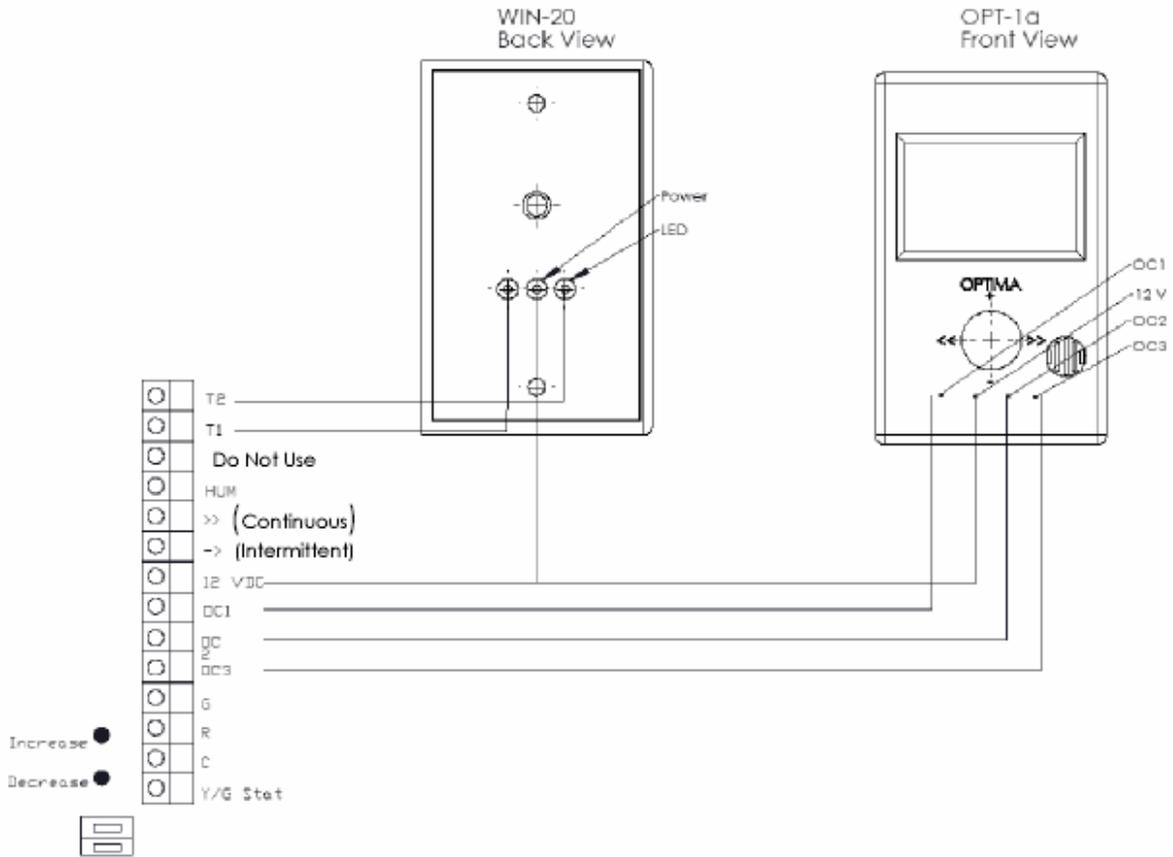
IMPORTANT! QUALIFIED TECHNICIANS SHOULD DO ALL OTHER SERVICING.

10. ELECTRICAL SCHEMATICS

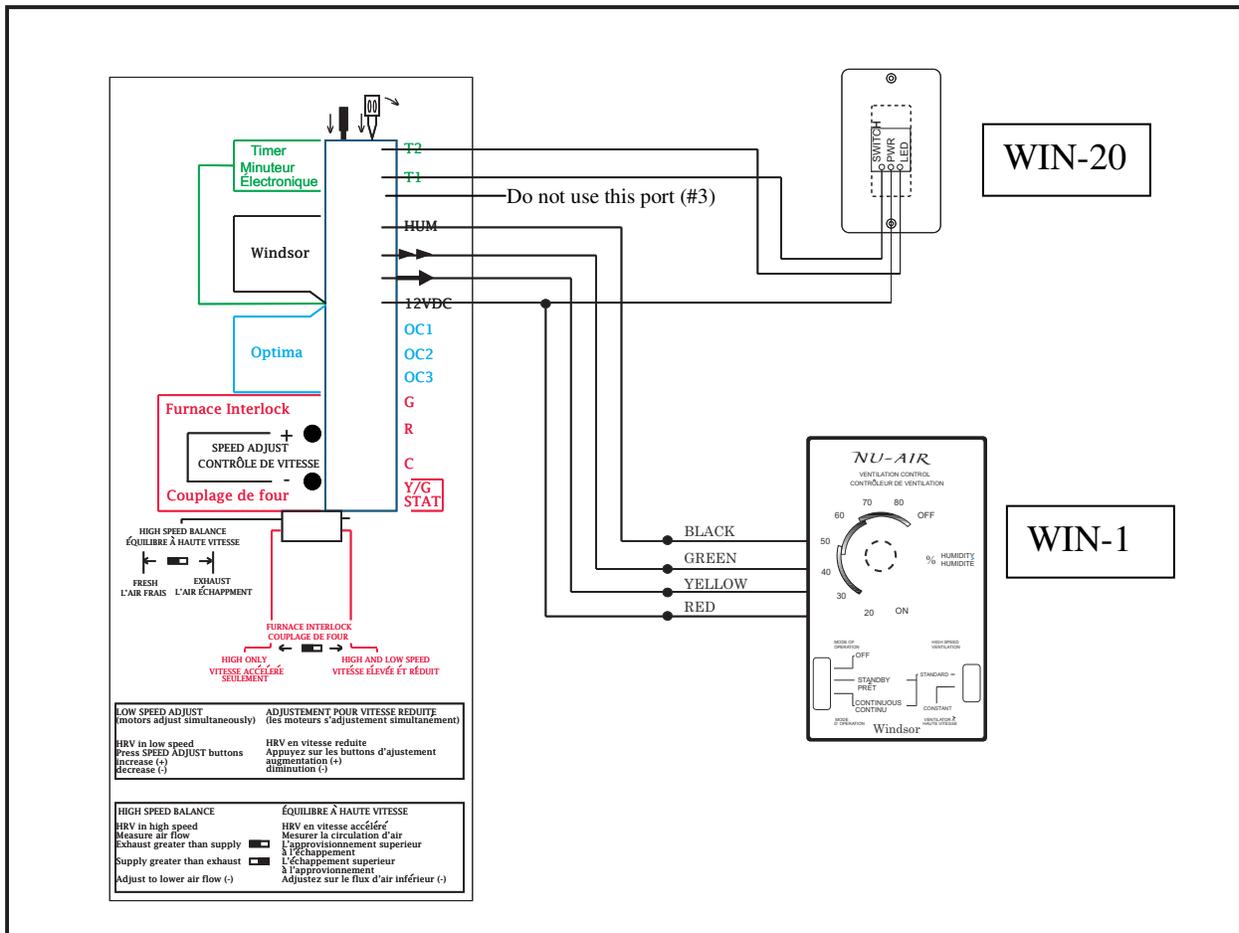
10-1. INTERNAL WIRING CONNECTIONS - RE-CIRCULATION DEFROST



10-2. OPTIMA WALL CONTROLS (OPT-1a) WIRING DIAGRAM



10-3. Windsor wall controls (WIN-1) wiring diagram



11.WARRANTIES

Your *NU-AIR* OPTIMA

Heat Recovery Ventilator Transferable Warranty

For Canada and United States

Should your **NU-AIR** OPTIMA Heat Recovery Ventilator (HRV) cease to function within eight (8) years (for models OP154, OP176) of the date of original purchase (effective April 17, 2005) due to defective material or workmanship of the product, **NU-AIR** Ventilation Systems Inc. will supply a new or rebuilt part FOB Factory to replace the defective part. Delivery, installation, and labour costs would be your responsibility.

Lifetime HRV Core Warranty

If the aluminum core in your **NU-AIR** Heat Recovery Ventilator fails due to a defect in material or workmanship **NU-AIR** Ventilation Systems Inc. will supply a new core FOB Factory to replace the defective part. Delivery and labour costs are your responsibility.

Nu-Air warrants its ERV core to be free from manufacturing defects for a period of one year.

Warranty Limitations

The above warranty does not cover damage to the unit while in your possession (other than damages caused by defective parts or material) due to the following: 1) improper installation or unreasonable use of unit; 2) failure to provide reasonable and necessary maintenance. If the unit is put to commercial use or application other than consumer use, warranty is for a period of one (1) year.



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Website: www.nu-airventilation.com

IMPORTANT

READ AND FILL OUT REGISTRATION
CARD IMMEDIATELY

THIS IS YOUR WARRANTY REGISTRATION CARD

In order to properly validate your warranty, you must fill
out and return this card. Failure to register unit will
require you to present proof of purchase should the unit
require service.

This information provides us the means of proving the
date you purchased the product and also enables us to
notify you in the unlikely event of a service notification
or recall of the product.

IMPORTANT

LISEZ ET REMPLISSEZ CETTE
CARTE D'INSCRIPTION
IMMÉDIATEMENT

VOICI VOTRE CARTE D'INSCRIPTION DE LA
GARANTIE

Afin de valider votre garantie, vous devez remplir et
renvoyer cette carte. A défaut d'inscrire votre produit,
vous devrez présenter une preuve de la date d'achat si
le produit nécessite des réparations.

Les renseignements ci-joints nous fourniront la preuve
de votre date d'achat du produit et nous permettront
également de communiquer avec vous si, pour une raison
fortuite, nous devons vous faire parvenir un avis de
réparation ou de rappel du produit.

PRODUCT WARRANTY REGISTRATION

**CARTE D'INSCRIPTION DE LA GARANTIE DE VOTRE
PRODUIT**

FIRST NAME _____ LAST NAME _____
NOM DU PRÉNOM _____ NOM DE FAMILLE _____

ADDRESS _____
ADRESSE _____

CITY _____
VILLE _____

PROVINCE _____ POSTAL CODE _____ DATE PURCHASED _____
PROVINCE _____ CODE POSTAL _____ DATE D'ACHAT _____
MO/MOIS DAY/JOUR YEAR/AN

TELEPHONE _____
TÉLÉPHONE (_____) _____

DEALER'S NAME _____
NOM DU VENDEUR _____

MODEL NUMBER _____
NO. DU MODÈLE _____

SERIAL NUMBER _____
NO. DE SÉRIE _____



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