NH-FAV FRESH AIR VENTILATION
INSTALLATION INSTRUCTIONS

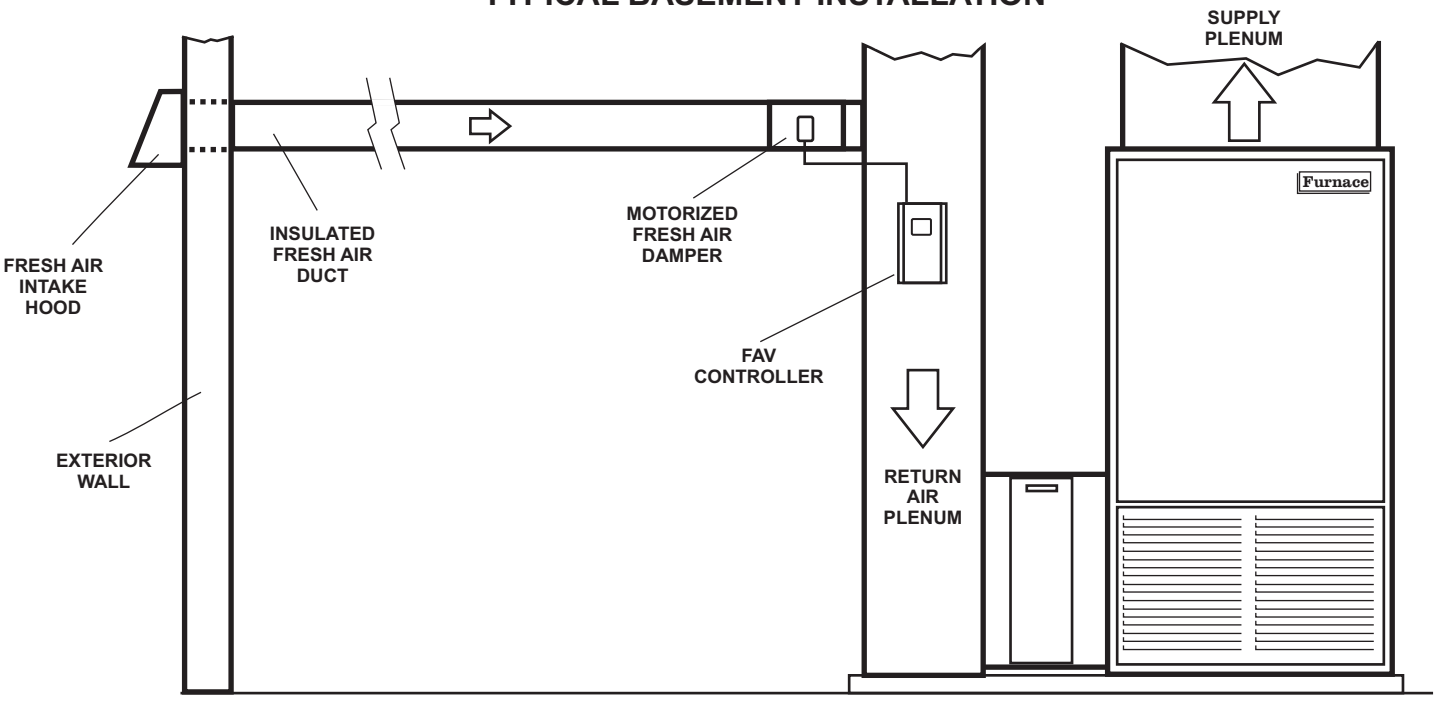
INTRODUCTION

The NH-FAV is designed to improve residential indoor air quality. This is accomplished by introducing fresh, outside air through an intake damper controlled by a logic panel. The panel controlls the amount of fresh air required each hour based on the ASHRAE 62.2 Ventilation and Indoor Air Quality Standard.

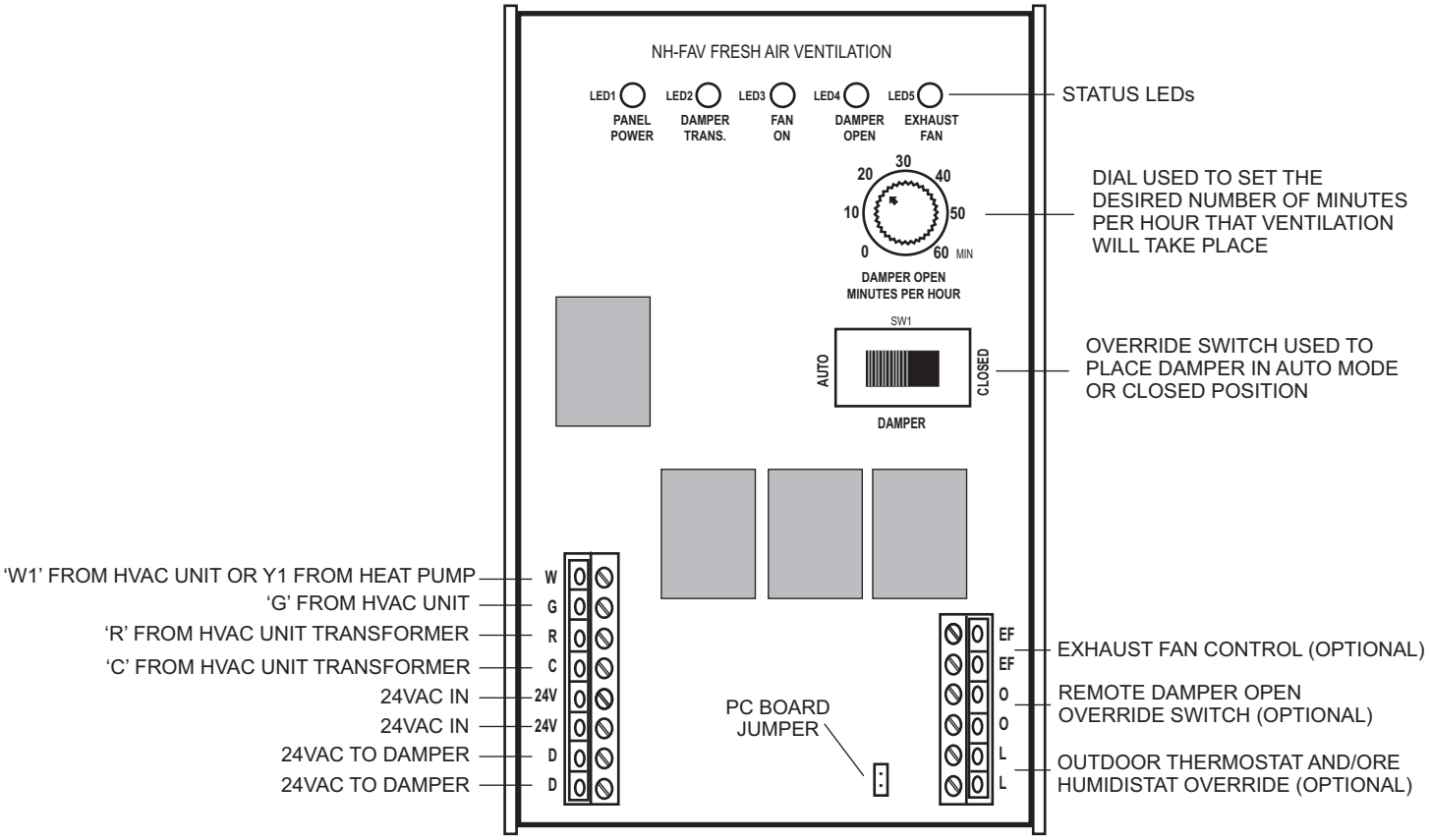
INSTALLATION OF INTAKE HOOD, FRESH AIR INTAKE DUCT AND MOTORIZED DAMPER

It is recommended that the intake hood be an open metal type with a screen. The fresh air intake should be located away from dryer or furnace vents, driveways, trash containers, swimming pools and at a level above any expected snow accumulation. Check all local codes that might apply. An insulated, 6” diameter, rigid fresh air intake duct is recommended with a 6” diameter, 2-wire, motorized fresh air damper. The damper actuator should be power open / spring return closed.

TYPICAL BASEMENT INSTALLATION



FAV PANEL OVERVIEW



FAV PANEL INSTALLATION

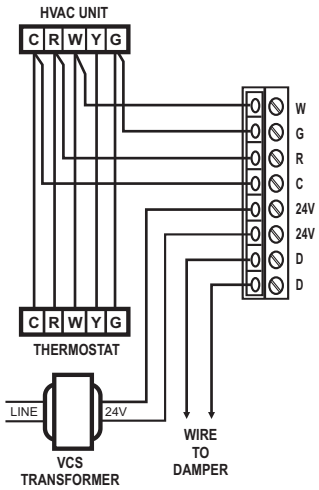
To install the FAV panel, remove the cover and slide the PC board out of its base. Screw the base to a flat surface in a location that allows easy access for wiring. Reinstall the PC board by carefully centering it over the base and snapping it into the track grooves.

The FAV receives its power from the equipment transformer. A separate 24VAC, 20VA transformer is required to power the fresh air damper. Only standard 18 gauge thermostat wire is required.

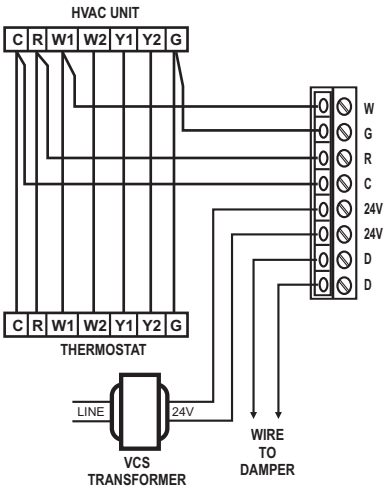
⚠ WARNING
Improper wiring to the HVAC unit can cause damage to the equipment and/or the FAV. Disconnect electrical power before wiring the FAV to the equipment.

TYPICAL WIRING DIAGRAMS FOR THERMOSTATS WITH AUTO-CHANGEOVER FEATURE

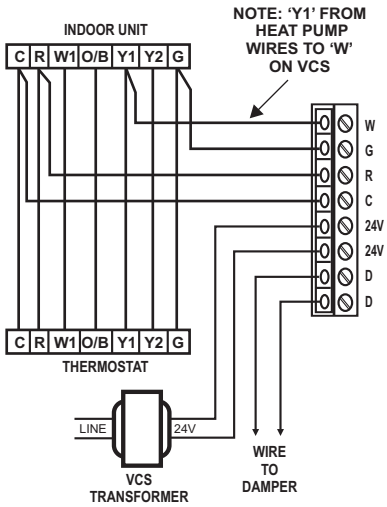
SINGLE STAGE HEAT/COOL



MULTI- STAGE HEAT/COOL

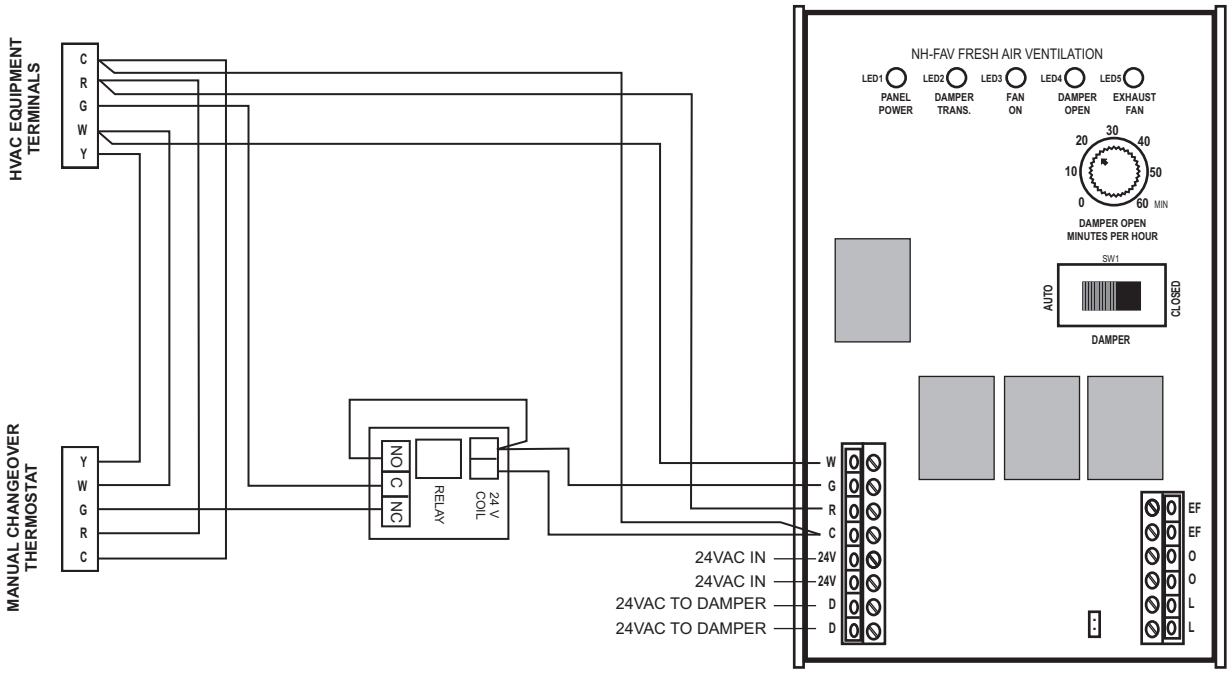


HEAT PUMP



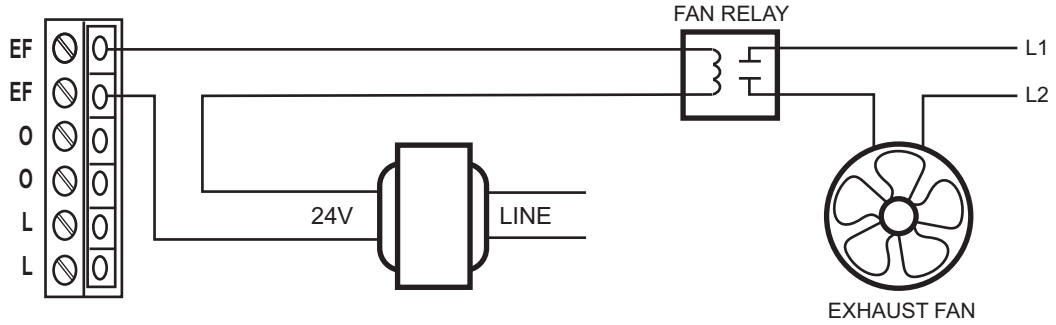
USING MANUAL CHANGEOVER THERMOSTATS

The majority of manual changeover thermostats interlock the fan relay with the cooling relay when the thermostat is placed in the cooling mode. When the fan mode is in AUTO and the FAV calls for ventilation without a cooling call taking place, a feedback signal can cause the cooling system to come on. A 24V SPDT isolation relay may be required to isolate the fan circuit. NOTE: Thermostats that have auto-changeover capability do not interlock the fan relay in the cooling mode even when configured for manual changeover.



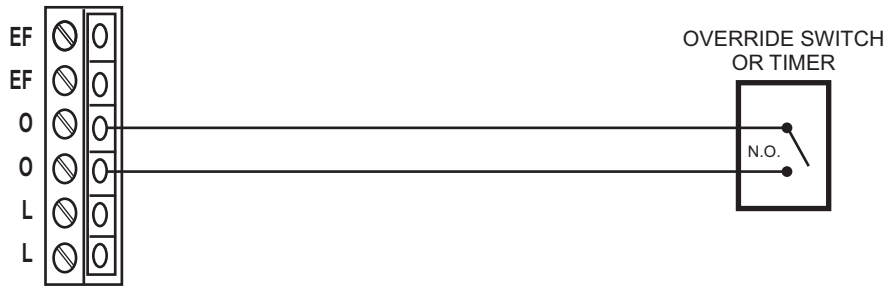
WIRING FAV TO OPTIONAL EXHAUST FAN

The FAV can be wired to an optional exhaust fan using the ‘EF’ terminals located on the panel. Wire the ‘EF’ terminals in series with the exhaust fan relay. When VCS is in the AUTO mode, the ‘EF’ contacts close when the fresh air damper is opened.



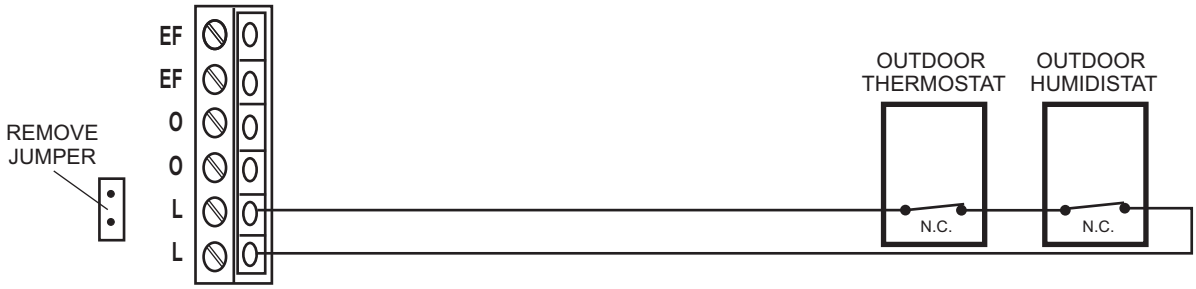
WIRING FAV TO OPTIONAL DAMPER OVERRIDE SWITCH

The FAV can be wired to an optional damper override switch or timer using the ’O’ terminals located on the panel. A dry contact closure across the ‘O’ terminals will open the fresh air damper and bring on the system fan. When the FAV is in the damper override mode, ventilation timing and all other override inputs are ignored.



WIRING FAV TO OPTIONAL OUTDOOR THERMOSTAT AND/OR HUMIDISTAT

The FAV can be wired to an optional outdoor thermostat and/or humidistat using the ‘L’ terminals to prevent the fresh air damper from opening based on a temperature and/or humidity setting. The jumper located to the left of the ‘L’ terminals must be removed and the outdoor thermostat and/or humidistat wired so that the contacts are closed during normal operation.



FAV VENTILATION TIMER QUICK REFERENCE CHART

The reference chart below is designed to provide ventilation timer settings for a 6” diameter rigid duct with a static pressure of 0.15” w.c. This chart can be used for most applications.

			VENTILATION TIME (MINUTES) BUILDING SIZE (Ft²)																	
			1,500			2,000			2,500			3,000			3,500			4,000		
DUCT LENGTH			10’	20’	30’	10’	20’	30’	10’	20’	30’	10’	20’	30’	10’	20’	30’	10’	20’	30’
	NO. BEDROOMS	1	16	17	18															
		2	20	21	23	23	24	26												
		3	25	26	27	27	29	30	30	31	33	33	34	36	35	37	39			
		4				31	33	35	34	36	38	37	39	41	40	41	44	42	44	47
		5										41	43	45	44	46	48	46	49	51
		6																50	53	56

FORMULA FOR SETTING THE VENTILATION TIMER

The FAV Ventilation Control System is designed to simplify selecting the minimum ventilation cycle rate to meet ASHRAE 62.2 Standard by using a single dial to set the desired number of minutes per hour that ventilation will take place. The timer cycle rate is calculated as follows:

(Home Area in Sq. Ft. x 0.01) + ((Number of Bedrooms + 1) x 7.5) = Required Airflow in CFM
(Required Airflow in CFM x 60 ÷ Total Airflow of Fresh Air Duct) x 60 = Ventilation Minutes Per Hour

Example: Home Area = 2,500 Sq. Ft. with 4 bedrooms.
(2,500 x 0.01 = 25) + ((4 + 1) x 7.5 = 37.50) = **62.50 CFM**

Total airflow of 10’ fresh air duct @ 0.15” w.c. = 110 CFM x 60 = **6,600 Cubic Feet Per Hour**

(62.50 CFM x 60 Minutes = 3,750) ÷ 6,600 x 60 = **34.09 Ventilation Minutes Per Hour**

The ventilation timer would be set for **34 Minutes**

DETERMINING CFM OF A FRESH AIR DUCT

The table below provides airflow delivery for a 6” diameter rigid duct in 10’, 20’ and 30’ straight lengths based on negative static pressure.

LENGTH OF DUCT	STATIC PRESSURE IN INCHES W.C.					
	0.05	0.10	0.15	0.20	0.25	0.30
10 FEET	65 CFM	90 CFM	110 CFM	125 CFM	140 CFM	160 CFM
20 FEET	60 CFM	85 CFM	105 CFM	120 CFM	135 CFM	150 CFM
30 FEET	55 CFM	80 CFM	100 CFM	115 CFM	130 CFM	140 CFM

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