ENVIRONMENTAL PARTNERS INC

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Vapor Intrusion Mitigation System Operation and Maintenance Manual

Edwards On 5th Property
2619 5th Avenue
Seattle, Washington

Prepared For:

Edwards On 5th Avenue, a Limited Partnership
1111 Third Avenue, Suite 3000
Seattle, Washington 98101

August 14, 2018

Prepared By:

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EPI Project Number: 68301.4

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1.0 INTRODUCTION

Environmental Partners, Inc. (EPI) has prepared this *Vapor Intrusion Mitigation System Operation and Maintenance Manual* on behalf of Edwards on 5th, a Limited Partnership (Edwards) in support of ongoing efforts to mitigate vapor intrusion to indoor air at the apartment building (Edwards Building) owned by Edwards On 5th, A Limited Partnership. The property is located at 2619 5th Avenue, in Seattle, Washington (subject property). The subject property experienced a leak from a former heating oil tank resulting in a groundwater plume of light non-aqueous phase liquid (LNAPL) and dissolved-phase diesel-range organics (DRO) beneath the Edwards Building.

The Edwards Building consists of one, uninhabited below-ground basement story used as storage and maintenance operations. The ground floor of the Edwards Building is also uninhabited and consists of a lobby and transition area to the upstairs residential units. Above the ground floor are several floors of residential apartment units.

2.0 VAPOR INTRUSION ASSESSMENT

EPI mobilized to the subject property on December 16, 2014 to perform an air sampling event at the subject property to evaluate the potential vapor intrusion impacts within the bottom floor of the Edwards Building. A total of three indoor air samples were collected within the basement and one background air sample was collected from outside the building. Sampling locations and analytical data are shown on Figure 1.

An evaluation of the indoor air samples indicated that vapor intrusion of naphthalene may be occurring into the Edwards Building from the former heating oil release. The two indoor air samples collected in the basement nearer the release (IA-2 and IA-3), exhibited concentrations of naphthalene above the cleanup level (CUL). The sample collected further away from the release, to the north (IA-1), exhibited no indications of naphthalene or other DRO-related compounds at concentrations greater than their respective CULs. Aromatic and aliphatic air-phase hydrocarbons (APH) were detected in both indoor air samples IA-2 and IA-3 but were less than their respective Model Toxics Control Act (MTCA) Method B Indoor Air CULs. No APH compounds were detected in IA-1.

3.0 CLEANUP LEVELS AND REMEDIATION LEVELS

As presented in the *Remedial Investigation Report* for the subject property, impacts to indoor air are controlled to meet site-specific MTCA Method B Remediation Levels (RELs) that are based on a commercial worker exposure scenario of a normal worker; 40 hours a week, 52 weeks per year. These engineering controls are used to maintain compliance with the RELs to meet the CULs for indoor air. CULs and RELs for the Edwards Building are presented in Table 1, below:

Table 1
Summary of Cleanup Levels and Remediation Levels

Contaminants of Concern	Air ($\mu g/m^3$)	
	CUL	REL
Naphthalene	0.0735	0.32
Aliphatic Hydrocarbons	140	--
Aromatic Hydrocarbons	180	--

Notes:
$\mu g/m^3$ Micrograms per cubic meter.
-- No toxicity data has been established for this compound

4.0 REMEDIAL ACTION

In response to the conditions known to exist within the bottom floor of the subject property, EPI contracted Environix, a local indoor air building-envelope air conditioning specialist contractor, to assist EPI in evaluating the pre-existing site-specific air conditioning factors such as relative humidity, temperature, dew point and carbon dioxide levels. This information was used to evaluate the equipment sizes and performance characteristics necessary to meet the desired air exchange rate. Environix prepared a *Site Assessment Report* dated November 25, 2015 (Attachment A) that details the evaluation and rationale for selection and locations of the vapor intrusion mitigation system (VIMS) equipment.

The bottom floor of the Edwards Building occupies approximately 1,500 square feet and the ceilings generally average 10 feet in height. This volume equates to approximately 15,000 cubic feet of air and is considered to be one equivalent air volume of the basement area. As expressed by Environix, typical ventilation rates for commercial buildings range from 0.35 and 0.7 air changes per hour (ACH). In order to satisfy the requirement of 0.35 ACH, a ventilation rate of approximately 875 cubic feet per minute (cfm) is required to maintain a satisfactory turnover rate that will be protective of the exposure risks. In consideration of the air turnover requirements, EPI and Environix selected two indoor air Heat Recovery Ventilators (HRVs), capable of each handling up to 500 cfm each (1,000 cfm total) to maintain the desired turnover rate, plus an additional 15 percent capacity, if necessary.

The objective of installing the VIMS was to address the potential intrusion of volatile components of diesel fuel into indoor air in the basement of the Edwards Building. The HRVs are used to positively pressurize the portion of the basement space overlying the impacted media at the subject property. By establishing a slight positive pressure gradient within the building compared to the exterior, the VIMS eliminates the potential for volatile vapors to migrate into the basement air space.

Two window-mounted HRV units (Soler and Palau Model TR130-200), were installed on December 17, 2015. One unit was installed in the maintenance room of the basement. The other unit was installed in the hallway of the basement. The units are individually connected with inlet and outlet piping to the exterior. Clean exterior air is sucked into the ventilation units from intake plenums attached to the south

side of the Edwards Building, which is forced into the space(s) being pressurized. The pressurized air within the building space is then vented back out through the same unit to the exterior. During this process, the incoming exterior air is warmed by the heated air that is being vented, in turn, allowing for some heat recovery to occur in the process.

These units are operated by a 110-Volt power supply and only draw approximately 2 to 3 amperes of current during normal operation. Following installation and prior to startup, gross penetrations and leaks between the basement and the exterior were sealed with expanding polyurethane foam to optimize air pressure confinement.

Equipment specifications for the HRVs are presented as Attachment B.

5.0 SYSTEM OPERATION

EPI staff met the HRV supplier and installer (Environix) at the subject property on April 12, 2016, to observe and document the system performance. To ensure a proper, continuous turnover rate, the volume of air within the bottom space that the HRVs are conditioning, should remain constant. In order to maintain this condition, the door that services access to the basement must remained closed, when not being used. A self-closing and locking mechanism was installed on that door to ensure that that door remains closed when not in use.

Each HRV processes approximately 500 cfm of air flow, continuously. The units were properly balanced by Environix personnel by dampening internal air-balancing plenums to balance the HRVs such that a slightly higher volume of air is drawn into the building than is exhausted, resulting in a slightly pressurized building interior.

Performance of the VIMS was evaluated by measuring the differential pressures between the building exterior and the basement during operation of the HRVs. Consistent positive pressures maintained within the Edwards Building indicate that the building is pressurized compared to the exterior, thereby eliminating the potential for vapors to migrate into the building. The initial pressure differentials (ΔP) in the boiler room and electrical room were measured and recorded against the exterior ambient background pressure using a manometer (The Energy Conservatory Model DG-700 Pressure and Flow Gauge). One port of the manometer was extended through the wall to the exterior to comparatively measure the pressure gradient between the exterior and the room being measured. During normal operation, a positive ΔP of 5.0 Pascals (Pa) was measured in the boiler room, and a positive ΔP of 1.5 Pa was measured in the electrical room.

Once the initial ΔP measurements were recorded, the HRV units were turned off the and the filters were cleaned. Over the initial operation period of approximately four months, the filters for both HRV units had accumulated dust and minor debris. The filters were cleaned and reinstalled.

The HRV units were restarted and allowed to operate for approximately 15 minutes to allow basement pressure to re-equilibrate. A second set of ΔP measurements was collected to verify that the system was maintaining positive pressure in the basement. A positive ΔP of 4.5 Pa was measured in the boiler room,

and a positive ΔP of 1.5 Pa was measured in the electrical room, as presented in Table 2, below, indicating an overall positive pressure compared to the building exterior.

Table 2
Basement Pressures During Operation

HRV Ventilator Location	Differential Pressure (Pascals)
Boiler Room	+ 4.5
Electrical Room	+ 1.5

6.0 SYSTEM MAINTENANCE

The VIMS is intended to operate continuously to prevent vapor migration into the Edwards Building. The selected HRVs are designed for continual operation and will maintain their intended functionality only if properly serviced. As presented above, the intent of the VIMS is to produce a higher air pressure within the building than its surroundings. Positive pressures within the building can only be assured if the VIMS is operating within its intended performance characteristics.

6.1 Maintenance Schedule

The following service schedule shall be maintained to ensure the HRVs intended performance:

- **Monthly**: Inspect the unit to ensure it is operating:
    - Inspect intake plenums from exterior for debris buildup. Remove if present.
- **Bi-yearly**: Service filters:
    - Release cam latches and swing access door open.
    - Remove filter clips.
    - Pull out the filters and vacuum with a hose attachment.
    - Re-install door and fasten cam latches.
    - Filters may be cut from a sheet or roll of ¾ - 1" firm, spun polyester filter "hog hair" media or material. If filters cannot be reasonably cleaned, replace with (2 each) 10½ x 21¾ filters.
- **Yearly**: Clean the face of the energy exchange core:
    - Remove the filters (see above).

- Vacuum the exposed faces of the energy exchange core with a soft brush attachment.
- After servicing the filters, re-install as above.
- Vacuum out dust from the rest of the unit case. Pay particular attention to entering faces of the energy exchange core.

6.2 Maintenance Log

On-site personnel are responsible for maintaining continual operation of the VIMS. Inspections of the equipment by building maintenance personnel will be tracked through the use of a field log set next to each unit to track their maintenance schedules and to ensure proper maintenance is being performed.

At a minimum, the logs will include the following information:

- Date and time.
- Name of the personnel performing the inspection.
- Acknowledgement that the door to the upstairs is closed.
- Any abnormal conditions such as no power, lack of flow, abnormal sounds, etc.
- A list of parts, filters or other items that need to be re-stocked or repaired.
- Actions taken by personnel to service the unit; i.e., called Environix for technical support, ordered filters, etc.

6.3 Troubleshooting

The following list of questions and answers may be used as a reference in the event a shutdown or other performance issue:

- The unit is not functioning:
  - Check to see if a power-indicating light is illuminated on the unit.
  - Ensure the unit is plugged in to an outlet.
  - Check the associated breaker panel to see if a breaker has been tripped.
- The unit is “on”, but no flow appears to be occurring:
  - Check the intake plenum on the exterior of the building to ensure it is not blocked. There should be a slight vacuum on the air intake.

- Check the plenum on the front of the unit to ensure air being exhausted to the exterior is not blocked.
- If no flow is occurring, the fan in the unit may not be operating properly.
- Contact an electrician if necessary to measure amperage draw on motor.

- The fan is "operating" but there is insufficient pressure within the building space:
  - Ensure the filters are properly cleaned and installed correctly.
  - Check to see that the basement door to the ground floor is closed tightly.
  - Check to see that all doors and windows in the basement are properly closed and sealed.
  - Consult Environix or the manufacturer about balancing plenums.
- The fan does not appear to be properly functioning:
  - Does the motor appear to be turning? If no, turn off the unit and seek service.
  - Is there a whining, squealing, or other abnormal sound? If yes, turn off the unit and seek service.
  - Does the fan appear to be vibrating, shuddering or does it seem to be improperly balanced? If yes, turn off the unit and seek service.

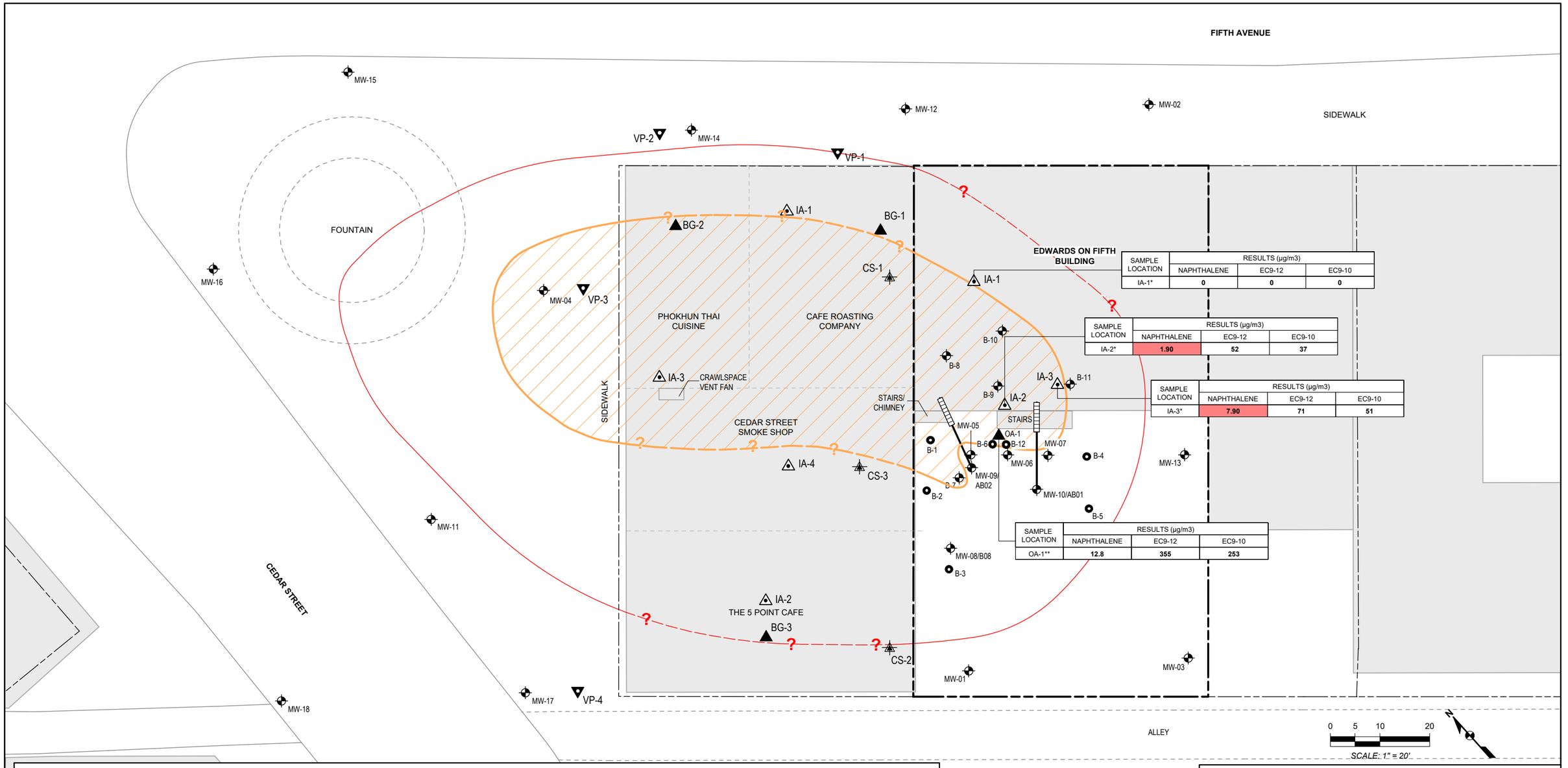
If any abnormal conditions are encountered, the maintenance personnel shall record those conditions on the maintenance log and shall take the proper actions to repair or replace the units as necessary to ensure their intended functionality.

7.0 LIMITATIONS

To the extent that preparation of this *VIMS Operations and Maintenance Manual* has required the application of best professional judgment and the application of scientific principles, certain results of this work have been based on subjective interpretation. EPI makes no warranties express or implied, including and without limitation, warranties as to merchantability or fitness for a particular purpose. The information provided in this report is not to be construed as legal advice.

This report was prepared solely for Edwards On 5th, A Limited Liability Company, LLC and the contents herein may not be used or relied upon by any other person without the express written consent and authorization of EPI.

Figure



SAMPLE LOCATION	RESULTS (µg/m3)		
	NAPHTHALENE	EC9-12	EC9-10
IA-1*	0	0	0

SAMPLE LOCATION	RESULTS (µg/m3)		
	NAPHTHALENE	EC9-12	EC9-10
IA-2*	**1.90**	52	37

SAMPLE LOCATION	RESULTS (µg/m3)		
	NAPHTHALENE	EC9-12	EC9-10
IA-3*	**7.90**	71	51

SAMPLE LOCATION	RESULTS (µg/m3)		
	NAPHTHALENE	EC9-12	EC9-10
OA-1**	**12.8**	**355**	**253**

NOTES:

- SUB-SLAB VAPOR PIN SAMPLE LOCATION
- INDOOR AIR SAMPLE LOCATION
- CRAWLSPACE AIR SAMPLE LOCATION
- BACKGROUND AIR SAMPLE LOCATION (ON ROOF OR OUTDOOR)
- MW-01 EXISTING MONITORING WELL LOCATION
- B-1 EPI BORING LOCATION (OCT 2014)
- PARCEL BOUNDARY
- SUBJECT PROPERTY BOUNDARY

APPARENT EXTENT OF DISSOLVED-PHASE PLUME. DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN

APPARENT EXTENT OF LNAPL PLUME. DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN.

SAMPLE LOCATION	RESULTS (µg/m3)	
	NAPHTHALENE	EC9-12
IA-2*	**0.34**	**250**

EC9-12 — ALIPHATIC HYDROCARBON

MTCA METHOD B CLEANUP LEVEL (MICROGRAMS PER CUBIC METER) — 0.0735 µg/m³ — 140 µg/m³

MTCA METHOD B REL CARCINOGEN LEVEL (MICROGRAMS PER CUBIC METER) — 0.3 µg/m³ — NOT APPLICABLE

BOLD INDICATES COMPOUND DETECTED GREATER THAN THE LABORATORY REPORTING LIMIT
GRAY SHADING INDICATES EXCEEDANCE OF THE APPLICABLE CLEANUP LEVEL
PINK SHADING INDICATES EXCEEDANCE OF ADJUSTED REL FOR COMMERCIAL WORKER

* INDOOR AIR RESULTS ADJUSTED FOR BACKGROUND SAMPLE RESULTS
** OA-1 AMBIENT AIR SAMPLE
*** CRAWLSPACE SAMPLES CONSIDERED INDOOR

FIGURE 1

AIR SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	VAPOR INTRUSION MITIGATION SYSTEM OPERATION AND MAINTENANCE MANUAL		
LOCATION	2619 FIFTH AVENUE SEATTLE, WA		
PREPARED FOR	EDWARDS ON 5TH AVENUE, A LIMITED PARTNERSHIP		
DATE 7/30/18	***DRAWN BY*** AM/CLM	***REVIEWED BY*** BAJ	***PROJECT NUMBER*** 68301.1

Attachment A
Environix Site Assessment Report

2027 196th St. SW, Suite A101
Lynnwood, WA 98036
Phone: 800-351-9563
Fax: 425-328-1554
www.environix.com
License #: SCHATSU972OZ
Schatz Services Unlimited, DBA Environix

Site Assessment

Client: Sean Trimble
Inspector: Tim Klassen
Date: 9/25/2015

CLIENT INFORMATION

Phone: 425-395-0034 (direct); 206-501-5545 (mobile); 425-395-0010 (main)
Email: seant@epi-wa.com
Mailing Address: 1180 NW Maple Street, Suite 310 Issaquah, Washington 98027
Property Address: 2619 5th Ave., Seattle WA 98121
Reference: 509128

ABOUT ENVIRONIX

Environix provides an array of indoor environmental solutions to residential, commercial, and government clientele. We are staffed with the most talented environmental professionals in the industry with an unparalleled ability to diagnose, prevent or repair a wide variety of indoor environmental problems.

OUR CLIENTS

- Mt. Vernon School District
- Suquamish Museum
- Fort Lewis
- University of Puget Sound
- US Coast Guard
- John L. Scott
- Royal Canadian Navy
- City of Redmond
- Museum of Flight
- Remax Properties
- Windermere Realty & Property Mgmt
- Fairfax Hospital
- Seattle Mariners
- Renton Police Dept.
- Puget Sound Naval Base
- Qwest Field
- Shaw Island School Dist.
- O'Dea High School
- Smith Tower
- Kennewick Housing Authority
- CB Bain

JOBSITE PHOTOS

Fig. 1: Stairwell With The Only Significant Exterior Access Point

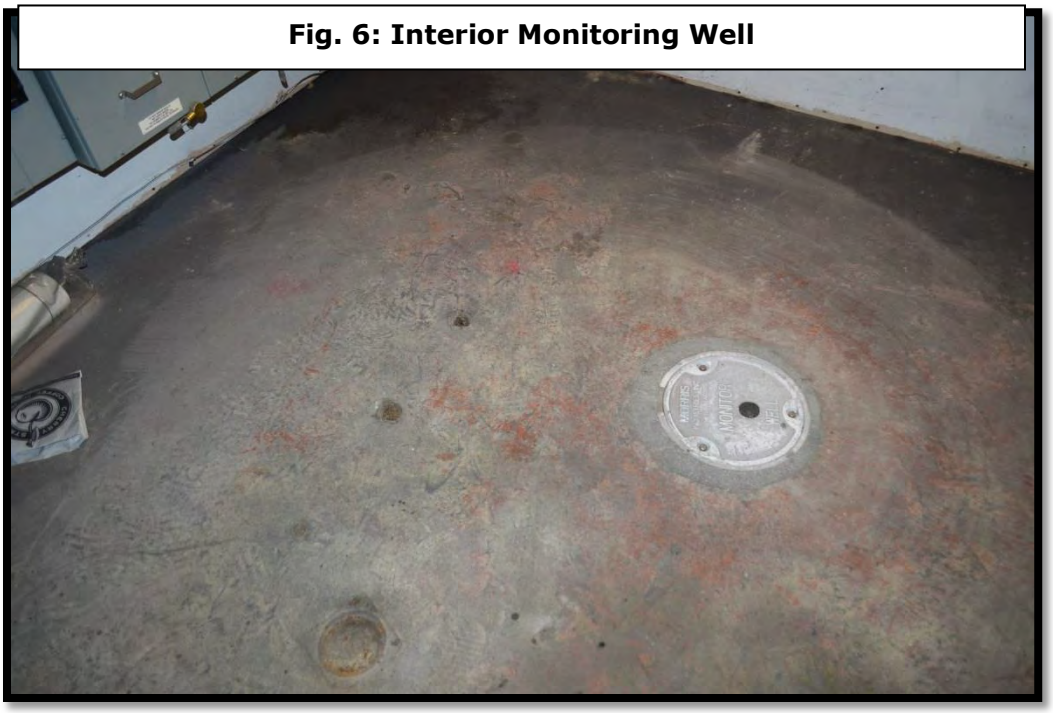
Fig. 2: Open Location Where Ducting Can Be Run

Fig. 3: Location Where Ventilation Access Will Be Installed

Fig. 4: Numerous Penetrations in Walls Complicates Positive or Negative Pressurization of the Air Spaces.

Fig. 5: Interior View of Ventilation Access Points to Exterior

Fig. 6: Interior Monitoring Well



PROJECT SUMMARY

REASON FOR INSPECTION:

- Client is required to provide ventilation to a basement storage area due to elevated levels of off gassing vapors from previous oil fuel tanks. Client requested an inspection to assist in a ventilation protocol of the basement spaces.

PROPERTY DESCRIPTION:

- Approximately 2600 ft² basement space of a commercial / residential apartment building. Space has been modified to include storage lockers for residents.

OBSERVATIONS

OBSERVATIONS APPLICABLE TO ENTIRE INSPECTION AREA:

- **Asbestos.** Asbestos containing materials are possible. All potentially asbestos containing materials must be tested prior to demolition or disturbance.
- **Lead.** Due to the age of the home, lead based paint may be present. When performing remodeling or demolition activities, ensure lead testing is performed or activities are conducted using lead safe practices.

Recommendations:

- Prior to disturbing any of the building materials in the home, be sure to test for the presence of asbestos and lead based paint.

VENTILATION & FILTRATION:

LEVEL/AREA	**RH:** (Target: <50%)	**Temp:** (Min. >65F)	**Dew Point:**	**CO_2:** (<1100 ppm)
OUTSIDE	73%	63°F	52°F	395 ppm
Interior	64%	65°F	52°F	502 ppm

Observations:

- **VACANT:** Home was vacant at the time of the inspection. Moisture and gas measurements collected in a vacant home will likely differ significantly from those collected during normal occupancy. During the winter months, indoor RH measurements in a vacant house can beneficial, however, during the summer months they are of little value.
- **Relative humidity levels are normal.** Generally, indoor RH levels should remain under 55% or under 50% in homes with poorly insulated exterior walls. NOTE: During the warmer months (June through September), the indoor RH levels may be elevated due to high RH levels in the outside air. Therefore, care should be taken when drawing conclusions from elevated RH levels during these months.
- **CO_2 levels are normal.** While not a direct health problem, elevated CO_2 levels are an indication of stale indoor air and poor ventilation. This can lead to a buildup of pollutants and humidity, which can cause mold growth. Following the ventilation recommendations listed below will lower the CO_2 levels in the home.
- **Basement suffers from insufficient ventilation.** This is likely the reason why elevated levels of Naphthalene were found in the hallway, maintenance room and utility room.

Desired Ventilation Rate:	3.5	ACH
Square Footage:	1500	sqft
Average Ceiling Height:	10	ft
Required Ventilation	875	Continuous CFM

Typical ventilation rates fall between 0.35 and 0.7 air changes per hour (ACH). Due to Buildings that are inadequately ventilated will likely suffer from increased levels of humidity and miscellaneous building pollutants. These factors may contribute to mold growth and other indoor air quality concerns.

Recommendations:

- **Installing additional ventilation is necessary to prevent elevated levels of Naphthalene from accumulating inside the building envelope.** Recommended procedures for limiting / preventing the accumulation of Naphthalene gas indoors will be based upon setting up a positively pressurized airspace.
- **Listed below is the preferred method of positively pressurizing the affected air spaces:**

PROPOSED VENTILATION PLAN

- Establish a positively pressurized airspace in the maintenance room, basement entry hallway and utility room.
- Positive pressurization of these rooms will be through the installation and constant operation of two (2) 500 cfm air scrubbers. (Note: if the required pressure is not being maintained, a 3rd air scrubber may be necessary and is not included in the existing bid below)
- Each air scrubber will be setup to pull air in from the exterior of the building, pass the air through a pre-filter and then a HEPA filter before ejecting the air into the interior space.
- The maintenance room and the hallway will be pressurized through the use of a single air scrubber while the utility/electrical room will have a dedicated air scrubber setup.
- Pressure measurements will be taken at the time of the initial setup using a manometer to determine the amount of pressurization that is taking place inside the basement.
- Further monitoring will continue every other month to ensure:
    - Pre and post filters are clean and operating optimally.
    - Interior pressures will be measured with an manometer and recoded.
    - Temperature, relative humidity, CO and CO^2 levels will be measured and recorded.

DESCRIPTION OF VENTILATION WORK

Subject to prompt acceptance within 30 days and pursuant to the terms and conditions set forth herein, we propose to perform the following work to the prices set forth below.

Option 1: Commercial HRV Setup – 600 cfm max

ITEM	LOCATION / INFO	QTY	UNITS
GENERAL			
Setup / Installation	Labor to create pressurized air system and install all equipment	1	EA
Maintenance	Labor to service scrubbers and change out filters, monthly	2	EA

EQUIPMENT PURCHASE			
Commercial grade HRV Unit 650 cfm Max	Broan - Commercial HRV system, electronic controls & mounting hardware –(Includes carbon filters)	2	EA

Total	$11,100.00
Tax Rate	9.60%
Tax	$1,065.60
Grand Total	$12,165.60

- **Note: Price above includes the first two service calls to inspect and change the filters and to take pressure measurements.**
- **All service calls after the initial 2 services will be billed at $250 per service call.**

Contract price subject to increase / decrease pursuant to the terms set forth below. Invoices due upon receipt, unless agreed otherwise. All past due invoices shall bear interest at the maximum rate allowed by law.

DESCRIPTION OF VENTILATION WORK

Subject to prompt acceptance within 30 days and pursuant to the terms and conditions set forth herein, we propose to perform the following work to the prices set forth below.

Option 2: Residential HRV Setup – 300 cfm max

ITEM	LOCATION / INFO	QTY	UNITS
GENERAL			
Setup / Installation	Labor to create pressurized air system and install all equipment	1	EA
Maintenance	Labor to service HRV system and change out filters, monthly	2	EA

EQUIPMENT PURCHASE			
Residential grade HRV Unit 300 cfm Max	Soler & Palau - Residential HRV system, electronic controls & mounting hardware - (Includes carbon filters)	2	EA

Total	$6,700.00
Tax Rate	9.60%
Tax	$643.20
Grand Total	$7,343.20

- **Note: Price above includes the first two service calls to inspect and change the filters and to take pressure measurements.**
- **All service calls after the initial 2 services will be billed at $250 per service call.**

Contract price subject to increase / decrease pursuant to the terms set forth below. Invoices due upon receipt, unless agreed otherwise. All past due invoices shall bear interest at the maximum rate allowed by law.

DESCRIPTION OF VENTILATION WORK

Subject to prompt acceptance within 30 days and pursuant to the terms and conditions set forth herein, we propose to perform the following work to the prices set forth below.

Option 3: Commercial HEPA Air Scrubbers – 500 cfm max

ITEM	LOCATION / INFO	QTY	UNITS
GENERAL			
Setup / Installation	Labor and materials to create pressurized air system and install all ventilation equipment	1	EA
Maintenance	Labor to service scrubbers and change out filters, monthly	2	EA

EQUIPMENT PURCHASE			
HEPA 500 air scrubber	DRI-EAZE brand HEPA scrubber. (Includes carbon filters).	2	EA

Total	$4,180.00
Tax Rate	9.60%
Tax	$401.28
Grand Total	$4,581.28

- **Note: Price above includes the first two service calls to inspect and change the filters and to take pressure measurements.**
- **All service calls after the initial 2 services will be billed at $250 per service call.**

Contract price subject to increase / decrease pursuant to the terms set forth below. Invoices due upon receipt, unless agreed otherwise. All past due invoices shall bear interest at the maximum rate allowed by law.

EXCLUSIONS

- Bid outlined above applies only to ventilation upgrades and does not include replacement or reinstall of new materials unless specifically outlined above.
- Bid does not include any upgrades or changes to existing electrical. If problems arise during installation of fans, client is responsible for hiring an electrician to trouble shoot the problem.

ACTIONS CLIENT MUST PERFORM

- Hallway doors to the elevator and stairwell must be kept closed in order to produce the necessary environment to maintain air pressure.

ADDITIONAL NOTES

- Once service call includes:
  - Removal and replacement of carbon filter.
  - Inspect all ducting and electrical for damage or changes.
  - Inspect and clean HRV heat core (if HRV option is chosen)
  - Take interior vs. exterior pressure measurements.

TERMS AND CONDITIONS

1. CHANGES IN THE WORK. Should the Owner, construction lender, or any public body or inspector direct any modification or addition to the work covered by this contract, the contract price shall be adjusted accordingly.

Modification or addition to the work shall be executed only when both the Owner and the Contractor have signed a Contract Change Order. The change in the contract price caused by such Contract Change Order shall be either as agreed to in writing, the Contractor's actual cost of all labor, equipment, subcontracts and materials, plus a contractor's fee of **(Twenty-Five)** %. The Change Order may also increase the time within which the contract is to be completed.

Any Change Order or Extra Work shall be incorporated in, and become a part of the contract. Unless otherwise agreed in writing, payment for changes and extras shall be due and payable upon substantial completion of the extra work or modification. CONTRACTOR shall not be responsible for credits, offsets or back-charges unless both parties agree to the credit, offset or back-charge in advance and in writing.

2. RESPONSIBILITIES OF THE PARTIES. Contractor shall promptly notify the Owner of (a) subsurface or latent physical conditions at the site differing materially from those indicated in this contract, or (b) unknown physical conditions differing materially from those ordinarily encountered and generally

recognized as inherent in work of the character provided for in this contract. Owner shall pay for any expense incurred due to such conditions.

The Owner is responsible to supply water, gas, sewer and electrical utilities unless otherwise agreed to in writing. Electricity and water to the site is necessary.

Owner agrees to allow and provide Contractor and his equipment access to the property and provide toilet facilities.

The Owner represents and warrants that owner has sufficient funds to comply with this agreement. This is a cash transaction unless otherwise specified.

The Owner is responsible to remove and / or protect any personal property and Contractor shall not be responsible for any damage to any carpets, drapes, furniture, driveways, lawns, shrubs, and etc. unless due to the sole negligence of Contractor.

The Owner will point out and warrant the property lines to contractor

In the event CONTRACTOR encounters concealed physical conditions or conditions which differ materially from those ordinarily found to exist in projects of the character provided for in this Agreement and these concealed or differing site conditions cause an increase in CONTRACTOR'S cost or time required for performance of the work under this Agreement, then CONTRACTOR shall be entitled to additional compensation based upon the additional cost plus twenty-five percent (25%) for CONTRACTOR'S overhead and profit or as otherwise agreed pursuant to a written change order.

OWNER agrees to provide sufficient access to the site to allow CONTRACTOR to complete its work. CONTRACTOR shall only be responsible for maintaining the area in which its work is performed.

Unless otherwise agreed to in writing signed by the parties, CONTRACTOR shall not be responsible for the following: obtaining all necessary building permits; existing substandard soil conditions; existing sub-soil conditions; soils engineering; locating and marking existing underground utilities; damage to unmarked and/or improperly marked underground utilities; erosion of soil due to weather; traffic control; contaminated soil; hazardous waste or costs associated with the removal of contaminated soil and/or hazardous waste; property damage due to heavy equipment, except upon the gross negligence of CONTRACTOR; surveys and boundary markings or staking or site layout. CONTRACTOR shall not be held liable for damage to curbs, driveways, sidewalks, patios, lawns, shrubbery, landscaping or other vegetation unless caused by the gross negligent movement of workers, vehicles, equipment, materials or debris.

3. DELAYS. Contractor agrees to start and diligently pursue work through to completion, but shall not be responsible for delays for any of the following reasons: failure of the issuance of all necessary building permits within a reasonable length of time, funding of loans, disbursement of funds into funding control or escrow, acts of neglect or omission of Owner or Owner's employees or Owner's agent, acts of God, stormy or inclement weather, strikes, lockouts, boycotts, or other labor union activities, Extra Work ordered by Owner, acts of public enemy, riots or civil commotion, inability to secure material through regular recognized channels, imposition of government priority or allocation of materials, failure of Owner to make payments when due, delays caused by inspection or changes ordered by the inspectors of authorized governmental bodies, acts of independent contractors, or holidays, or other causes beyond Contractor's reasonable control.

After acceptance of this Agreement, CONTRACTOR shall have a reasonable time in which to make delivery of materials and/or labor to commence and complete the performance of the contract.

4. PLANS & SPECIFICATIONS. If plans and specifications are prepared for this job, they shall be attached to and become a part of the agreement.

5. SUBCONTRACTS. The Contractor may subcontract portions of this work to properly licensed and qualified subcontractors.

6. FEES, TAXES AND ASSESMENTS. Owner will pay for taxes, permits and assessments of all descriptions at owner's request. Contractor

will obtain all required building permits at owners cost, and Owner will pay assessments and charges required by public bodies and utilities for financing or repaying the cost of sewers, storm drains, water service, schools and school facilities, other utilities, hook-up charges and the like.

8. INSURANCE AND DEPOSITS. Owner will procure at Owner's expense and before the commencement of any work hereunder, fire insurance with course of construction, vandalism and malicious mischief clauses attached, such insurance to be a sum at least equal to the contract price with loss, if any, payable to any beneficiary under any deed of trust covering the project, such insurance shall also name the Contractor and any subcontractors as additional insured, and to include sufficient funds to protect Owner, Contractor, subcontractors and construction lender as their interests may appear. Should Owner fail to do so, Contractor may procure such insurance as agent for and at the expenses of Owner, but is not required to do so.

If the project is destroyed or damaged by accident, disaster or calamity, such as fire, storm, earthquake, flood, landslide, or by theft or vandalism, any work done by the Contractor in rebuilding or restoring the project shall be paid by the Owner as extra work.

Contractor shall carry Worker's Compensation insurance for the protection of Contractor's employees during the progress of the work. Owner shall obtain and pay for insurance against injury to Owner's own employees and persons under Owner's direction and persons on the job site at Owner's invitation.

9. RIGHT TO STOP WORK: Contractor shall have the right to stop work if any payment shall not be made, when due, to Contractor under this agreement. Contractor may keep the job idle until all payments due are received. This remedy is in addition to any other right or remedy that the Contractor may have. Such failure to make payment when due, is a material breach of this agreement. Owner acknowledges that the additional costs for the delay in stopping and starting the project shall be treated as an extra and allow Contractor additional costs in accordance with paragraph one hereof.

10. CLEAN-UP. Contractor will remove from Owner's property debris and surplus materials created by this operation and leave it in a neat and broom clean condition.

11. LIMITATIONS. No action of any character arising from or related to this contract, or the performance thereof shall be commenced by either party against the other more than two years after completion of the project or cessation of work under this contract.

12. COMPLIANCE WITH LAWS. In connection with the performance by Contractor, pursuant to this agreement, Contractor shall comply with all federal, state, county and local laws, ordinances and regulations.

13. ATTORNEY FEES. In the event that any legal action becomes necessary to enforce any provision of this Agreement, the prevailing party in any such action shall be entitled to the recovery of its reasonable attorney's fees and costs, including expert's fees and costs. At CONTRACTOR'S sole option, all disputes arising out of or relating to this Agreement may be submitted to and decided by binding arbitration with an approved arbitration association, or other independent arbitrator as agreed upon by the parties. Jurisdiction and venue of any dispute arising out of this agreement shall be in King County, Washington.

14. PAYMENT. Payment shall be made promptly as set forth above. In the event that OWNER fails to make any payment as provided herein, CONTRACTOR may, at its option, stop work without prejudice to any other remedy it may have. OWNER certifies that sufficient funds and/or financing are available to timely meet the payment obligations of this Agreement. CONTRACTOR shall, upon request, provide OWNER with lien releases/waivers from all subcontractors and suppliers. In the event of a dispute with regard to any portion of the work, OWNER agrees to promptly pay

when due for all undisputed portions of the work. OWNER'S failure to pay any balance when due shall constitute a material breach of this Agreement.

15. ASBESTOS AND HAZARDOUS WASTE. Unless the contract specifically calls for the removal, disturbance or transportation of asbestos or other hazardous substances, the parties acknowledge that such work requires special procedure, precautions, and/or licenses. Therefore, unless the contract specifically calls for same, if Contractor encounters such substances, Contractor shall immediately stop work and allow the Owner to obtain duly qualified asbestos and/or hazardous material contractor to perform the work or the Contractor may perform the work at Contractor's option. Said work will be treated as an extra under the contract.

16. Warranty. All work is to be performed in a workmanlike manner within industry standards. All workmanship is guaranteed against defects. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. CONTRACTOR shall not be responsible for special, incidental and/or consequential damages. CONTRACTOR'S liability shall be limited to repair and/or replacement of any nonconforming work. CONTRACTOR shall not be responsible for any problems due to or associated with the settling of the ground and/or adjacent structures. To the extent that CONTRACTOR is required or requested to return to the site to correct and/or repair any of its work due to alterations or damage done by others, such work shall be considered an "extra" and billed separately at the rate as related above, plus a reasonable re-mobilization charge.

17. CONTRACTOR'S RIGHT TO CURE. CHAPTER 64.50 RCW CONTAINS IMPORTANT REQUIREMENTS YOU MUST FOLLOW BEFORE YOU MAY FILE A LAWSUIT FOR DEFECTIVE CONSTRUCTION AGAINST THE SELLER OR BUILDER OF YOUR HOME. FORTY-FIVE DAYS BEFORE YOU FILE YOUR LAWSUIT, YOU MUST DELIVER TO THE SELLER OR BUILDER A WRITTEN NOTICE OF ANY CONSTRUCTION CONDITIONS YOU ALLEGE ARE DEFECTIVE AND PROVIDE YOUR SELLER OR BUILDER THE OPPORTUNITY TO MAKE AN OFFER TO REPAIR OR PAY FOR THE DEFECTS. YOU ARE NOT OBLIGATED TO ACCEPT ANY OFFER MADE BY THE BUILDER OR SELLER. THERE ARE STRICT DEADLINES AND PROCEDURES UNDER STATE LAW, AND FAILURE TO FOLLOW THEM MAY AFFECT YOUR ABILITY TO FILE A LAWSUIT.

18. ENTIRE AGREEMENT. This Agreement supersedes any and all other Agreements, either oral or written, and contains all of the covenants and agreements between the parties. Each party to this Agreement acknowledges that no representations, inducements, promises or agreements, orally or otherwise, have been made by either party, or anyone acting on behalf of any party to this Agreement, which are not embodied herein, and that no other agreement, statement or promise not contained in this Agreement shall be valid or binding. Any modification of this Agreement will be effective only if it is in writing, signed by the party to be changed.

AGREEMENT

Owner agrees to pay Environix the total cash price of **$4,227.97**__ with a down payment of 50% due upon commencement of project. Payment policy: Full payment must be received the day of project completion.

This pricing reflects a 3% cash or check discount. All other forms of payment will be subject to an increase in pricing.

Having read and fully understood this Agreement, I (we) hereby authorize the remediation of the subject property.

Client Signature: _____ Date: _____

Client Name: _____

Property Address: _____

NOTICE TO CUSTOMER (PLEASE SIGN AGAIN BELOW):

This contractor is registered with the state of Washington, registration no._SCHATSU972OZ, and has posted with the state a bond or deposit of _$12,000_ for the purpose of satisfying claims against the contractor for breach of contract including negligent or improper work in the conduct of the contractor's business. The expiration date of this contractor's registration is _09/09/2017_.

THIS BOND OR DEPOSIT MIGHT NOT BE SUFFICIENT TO COVER A CLAIM THAT MIGHT ARISE FROM THE WORK DONE UNDER YOUR CONTRACT.

This bond or deposit is not for your exclusive use because it covers all work performed by this contractor. The bond or deposit is intended to pay valid claims up to _$12,000__ that you and other customers, suppliers, subcontractors, or taxing authorities may have.

FOR GREATER PROTECTION YOU MAY WITHHOLD A PERCENTAGE OF YOUR CONTRACT.

You may withhold a contractually defined percentage of your construction contract as retainage for a stated period of time to provide protection to you and help insure that your project will be completed as required by your contract.

YOUR PROPERTY MAY BE LIENED.

If a supplier of materials used in your construction project or an employee or subcontractor of your contractor or subcontractors is not paid, your property may be liened to force payment and you could pay twice for the same work.

FOR ADDITIONAL PROTECTION YOU MAY REQUEST THE CONTRACTOR TO PROVIDE YOU WITH ORIGINAL "LIEN RELEASE" DOCUMENTS FROM EACH SUPPLIER OR SUBCONTRACTOR AT YOUR PROJECT.

The contractor is required to provide you with further information about lien release document if you request it. General information is also available from the state Department of Labor and Industries.

I have received a copy of this disclosure statement.
Dated this _____ day of _____ of the year _____.

_____
Signature of Customer

The contractor must retain a signed copy of the disclosure statement in his or her files for a minimum of three years, and produce a signed or electronic signature copy of the disclosure statement to the department upon request.

Attachment B
HRVs Equipment Specifications

BROAN®
FRESH AIR SYSTEMS

SPECIFICATION SHEET

MODELS HRV650 & HRV1150 LIGHT COMMERCIAL HEAT RECOVERY VENTILATOR

FEATURES

BLOWER:

- Fresh and stale air streams are isolated from each other to prevent mixing of stale air with fresh air
- High pressure, centrifugal blower accommodates many ducting configurations
- Balanced centrifugal blower wheels for quiet operation and long motor life
- Two permanently lubricated, 115 VAC, 60 Hz, Permanent Split Capacitor (PSC) three-speed motors designed for continuous operation

HOUSING:

- Rugged steel housing with corrosion-resistant finish
- Built-in defrost mechanism prevents freeze-ups
- Every part is removable in less than five minutes
- Square inlets and outlets for easy duct connections
- All inside surfaces covered with foil-faced thermal/acoustic insulation
- Easily removable, reticulated, washable foam filters (20 pores/inch)
- Rubber straps hang the unit
- Built-in drain tube connection

CONTROLS:

- Off/Low/High switch on side of unit
- Provisions for low voltage control
- Fully enclosed, modular controls mounted to outside of cabinet for improved reliability and easy servicing

CORE:

- Non-enthalpic core transfers energy without moisture vapor transfer
- Easily removable for cleaning and replacement - no tools required
- Material is U.L. flammability classified 94 HB.

		HRV650	HRV1150
Electrical	Voltage	115 vac	115 vac
	Power	640 watts	1275 watts
	Max fuse rating	5.7 amps	11.7 amps
Weight	Net	148 lbs	186 lbs
	Shipping weight	188 lbs	226 lbs

TYPICAL SPECIFICATIONS

The Heat Recovery Ventilator shall be Broan-NuTone Model HRV650 (Model HRV1150).

Rated air flow shall be 650 (1150) cfm at 0.4 in. wg.

Unit to include easily-removable energy recovery core - no tools should be required to remove.

Fresh air and stale air streams to be isolated from each other to prevent mixing of stale air with fresh air.

Built-in defrost mechanism to be provided to prevent freeze-ups.

Provisions for mounting the unit to the ceiling joists to be provided.

Every part shall be removable in less than five minutes.

All interior surfaces to be covered with foil-faced thermal/acoustic insulation.

Unit shall include easily removable, washable air filters. No tools are to be required for filter cleaning/replacement.

The controls are to be mounted outside of the unit and include an off/low/high switch and provisions for low voltage controls.

Unit to accommodate square duct.

Blower shall be designed for continuous operation using two permanently lubricated, PSC (Permanent Split Capacitor) motors and balanced centrifugal blower wheels.

Unit to be ETL listed and cETL certified.

Broan-NuTone LLC, 926 West State Street, Hartford, Wisconsin 53027 (1-800-637-1453)

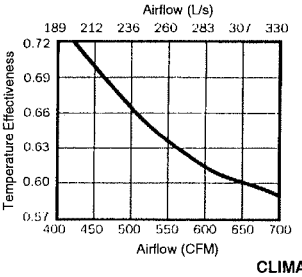
REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

PERFORMANCE RATINGS

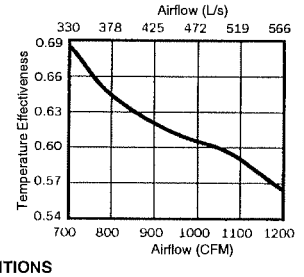
MODELS HRV650 & HRV1150
HEAT RECOVERY VENTILATOR

Option Installed: Defrost

HRV650 EFFICIENCY

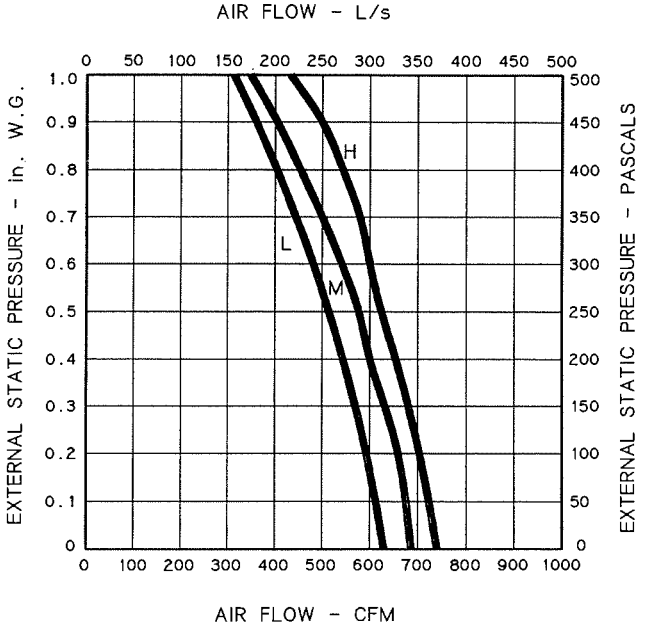


HRV1150 EFFICIENCY

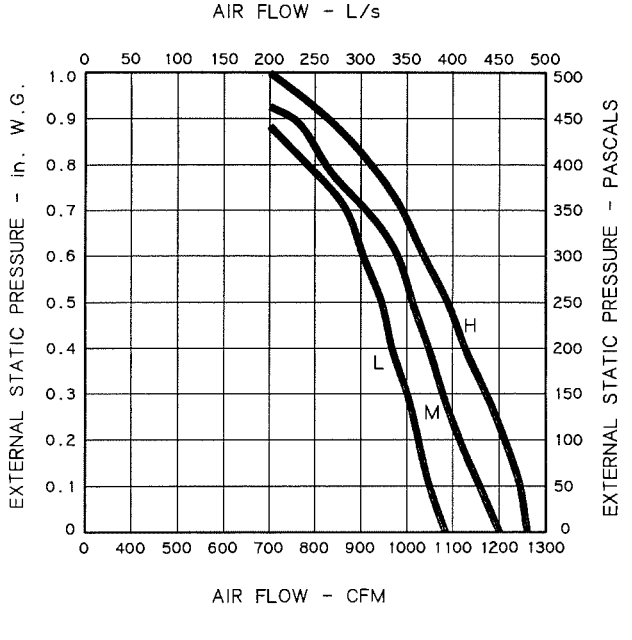


CLIMATE CONDITIONS
Indoor air @ 22°C (72°F), 50% RH
Outdoor air @ 0°C (32°F), 0% RH

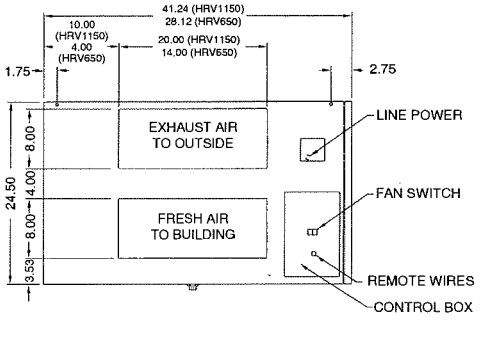
HRV650 VENTILATION



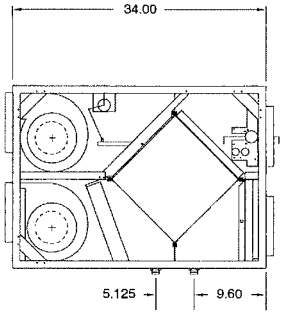
HRV1150 VENTILATION



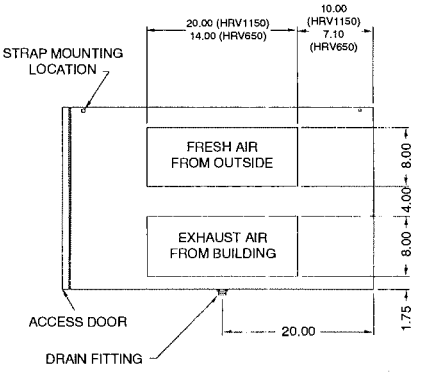
LEFT VIEW



FRONT VIEW

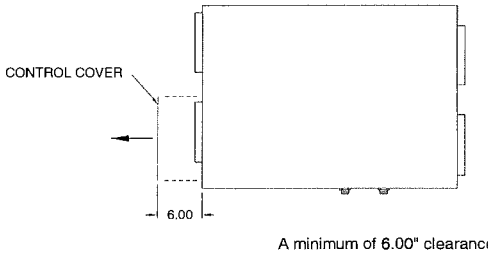


RIGHT VIEW

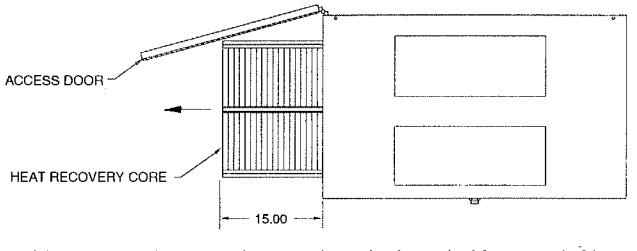


NOTE: These models have a damper located on the outdoor intake connection. This damper will close in defrost or when the unit is placed in the "off" position with power maintained to the unit. This damper is not designed as a backdraft damper and will remain open if power is disconnected to the unit for any reason.

ALL MEASUREMENTS ARE IN INCHES



A minimum of 6.00" clearance from any obstruction is required for removal of control box.



A minimum of 15.00" clearance from any obstruction is required for removal of heat recovery cores, fans, etc. The access door can be removed from cabinet with only 2.00" of clearance.

BROAN
FRESH AIR SYSTEMS

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