NATURE'S WAY ENVIRONMENTAL
Consultants & Contractors, Inc.

3553 Crittenden Road
Alden, NY 14004
(716) 937- 6527
www.natureswayenvironmental.com

SUBMITTAL COVER SHEET

Project Name: Former Roxy Cleaners – Remedial Action
Project No.: Contract No. D009709
Submittal No.: #20

1. Date: 2/3/16
2. Submitted Item: Sub Slab Depressurization System (SSDS)
3. Manufacturer: _____
4. Person Submitting: Eric Warren
5. Spec. Location: Section 13712 Article _____ Paragraph _____ Subparagraph _____
   (Must match that of Submittal Record Form)
6. Contractors Notes: Please review the attached SSDS plan and supporting information.
7. Architect/Engineer Notes: _____

Architect/Engineer's Stamp

- ☐ Code 1 - Approved
- ☐ Code 2 – Approved As Noted
- ☐ Code 3 – Resubmit With Revisions
- ☐ Code 4 - Disapproved

Checking of submittals is only for general conformance with the design concept of the Project and general compliance with the information given in Contract Documents. Any action shown is subject to the requirements of the Drawings and Specifications. Contractor is responsible for dimensions to be confirmed and correlated at the job site, quantities, information that pertains solely to the fabrication processes or to techniques of construction, coordination of the work of all trades, and the satisfactory performance of his work.

By: _____ Date: _____
Architect/Engineer

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Sub-Slab Depressurization System Supply, Installation and Startup Testing
Roxy Cleaners Site No. 401058
Contract No. D009709
156 Delaware Avenue
Bethlehem, NY

Per the job specifications, Nature's Way will furnish, install and startup all systems and equipment as required to mitigate soil vapor intrusion into the building at 154 Delaware Avenue, Delmar, NY. This mitigation plan is based on details found in Section 13712 of the Contract Documents as well as mitigation information from the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 prepared by New York State Department of Health (NYSDOH).

In conjunction with sealing potential subsurface vapor entry points, an active sub-slab depressurization system (SSDS) is the preferred mitigation method for buildings with slab –on-grade foundation. A SSDS uses a fan-powered vent and piping to draw vapors from the soil beneath the building's slab (i.e., essentially creating a vacuum beneath the slab) and discharge them to the atmosphere. This results in the lower sub-slab air pressure relative to indoor air pressure, which prevents the infiltration of sub-slab vapors into the building.

To evaluate the potential effectiveness of a SSDS before it is installed, a diagnostic test (commonly referred to as a "communication" or pilot test) will be performed to ensure the ability of a suction field and air flow to extend through the material beneath the slab. This pilot test is commonly conducted by applying suction on a centrally located hole drilled through the concrete slab and simultaneously observing the movement of smoke downward into small holes drilled in the slab at locations separated from the central suction hole. A similar quantitative evaluation may also be performed by using a digital manometer or comparable instrument. A Pressure Field Extension Testing Sheet will be completed while the pilot test is being conducted. This sheet will document how and where the pilot test was performed, background information of the building including current conditions, what size floor penetrations and results of the pilot test. A copy of the Pressure Field Extension Testing Sheet is attached. Once the pilot test is completed, the Pressure Field Extension Testing Sheet will be sent to the NYSDOH and NYSDEC for their review and Nature's Way will address any comments.

Per the job specifications, the products used in the SSDS will be Schedule 40 PVC piping in which all connections will be glued unless specifically told otherwise. All PVC piping will be fabricated and installed for operating ranges as follows:

1. Temperature Range: -40 degrees Fahrenheit to 150 degrees Fahrenheit.
2. Pressure Range: Full vacuum to 150 psig at 73 degrees Fahrenheit.

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Elastomeric Joint Sealant conforming to ASTM C920-87 will be the sealant applied around the PVC pipe where it comes up through the concrete floor as well as where the pipe exits the building as identified in the Contract Drawings. The sealant shall limit the flow of subsurface vapors into the building and prevent air leakage from the piping. The RadonAway RP145 will be installed as the required all weather radon mitigation fan that is capable of moving air volume upwards of 60 cubic feet per minute. See attached sheet for RadonAway RP145 specifications.

NYSDEC/NYSDOH will generate and forward a letter to the owner of the building at 154 Delaware Avenue, Delmar, NY stating that the electric that will be hooked up to operate the mitigation fan is derived from the buildings own electric panel and they are responsible for paying all electric that supplies the SSDS. The building owner will not hold the New York State Department of Environmental Conservation, New York State Department of Health, CDM Smith nor Nature's Way responsible for paying any electrical utility costs associated with the operation of the SSDS.

The SSDS will be installed in the interior room of 154 Delaware Avenue along the south western side of the building directly adjacent to the where the soil remediation project is being completed at 156 Delaware Avenue. See attached drawing and pictures for the proposed area of the building to install the SSDS as well as the proposed location where the system will vent.

Once the pilot test confirms that the location of the SSDS is in an area with positive suction, the concrete floor will be drilled through with a 6 inch concrete core bit and the 40 schedule PVC pipe will be installed through the floor into the air space located directly beneath the floor. Per the contract documents, the sealant used to seal up the void space between the outside diameter of the pipe and the concrete floor will be the Elastomeric Joint Sealant. The pipe will run vertically up alongside of the door frame approx. 9 feet up into the drop ceiling area. Once above the drop ceiling a 90 degree bend fitting will be installed onto the pipe redirecting the pipe towards the western wall which is approx. 12 feet away. A 6 inch hole will also be made through the western wall to allow the pipe to extend to the outside. In the same way as the void in the floor was sealed up around the pipe, the sealant used to seal up the void space between the outside diameter of the pipe and the western wall will be the Elastomeric Joint Sealant. From there another 90 degree bend fitting will be installed on the pipe to allow the pipe to travel up the building towards the roof.

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Just on the upside of the fitting the mitigation fan will be installed. Nature's Way also intends to supply power to the fan with its own dedicated 110 volt electric line that will be generated from the building's power panel.
This dedicated electric line will also be furnished with a GFI breaker. The outgoing pipe from the fan will continue to travel up the side of the building towards the roof line. To help avoid entry of the extracted subsurface vapors back into the building, Nature's Way will install the vent pipe's exhaust above the highest eave of the roof or if there is no eave, at least 12-inches above the roof surface. The vent pipe's exhaust will also be at least 10 feet above the ground surface and at least 10 feet away from any opening that is less than 2 feet below the exhaust point as well as 10 feet from any adjoining or adjacent buildings, or HVAC intakes or supply registers. A rain cap will also be installed in a manner that will not allow for extracted subsurface vapors to enter the building. See attached pictures detailing proposed piping and fan location in the building.

Once the SSDS is operational the entire system will be checked to identify and fix any leaks that may be present. Also verification that a vacuum is induced in the sub-slab area will be performed by using a digital manometer. If adequate depressurization is not occurring, the reason will be identified and corrected.

Once the SSDS is installed and operational, all necessary paperwork will be filled out completely including the Mitigation System Installation Record (see attached for copy). Along with the Installation Record, a summary letter report will be generated documenting installation activities complete with photo documentation as well as-built drawings showing exact location and sizing of piping, make and model of manometer that is installed, make and model of mitigation fan that is installed and an electric detail on the electrical connection that was made. For the following two days after SSDS installation, Nature's Way will monitor all connections and manometer to ensure that the SSDS is fully operational with no problems. After the second day of monitoring and if there are no problems with the SSDS, Nature's Way will turn the system over to the NYSDEC. At this point all the necessary paperwork documenting successful completion of the pilot test (Pressure Field Extension Testing Sheet), successful completion of the system install (Mitigation System Installation Record), copy of the letter from the building owner signing off that they are aware that they are responsible for paying all electric utility bills that are associated with operation of the SSDS and as-built documentation will be will be handed over to the NYSDEC.

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Also the NYSDEC Soil Vapor Mitigation System signs will be posted inside 154 Delaware Ave notifying the public that a soil vapor mitigation system is operational on the premises. This posting will show date of SSDS installation and have lines available to document dates and times of any system inspections as well. There is also instructions on the posting directing the building owner to call the NYSDEC for a system service or inspection if they believe the system is not working properly. Please see attached copy of the NYSDEC SSDS Operational sign.

List of Similar Type Projects

- 2015 – completed design and installation of a sub-slab depressurization system at a commercial/industrial property known as former Rome Cable Site (complex #1) located at 421 Ridge Street, Rome, NY in Oneida County. The installation of this system was deemed necessary due to a historic onsite Tetrachloroethylene spill. This work was completed for NYSDEC Region 6 for Mr. Benjamin Rung (518) 402-9813.

- 2012 – completed installation of radon mitigation system at a residence at 5244 Genesee Street, Bowmansville, NY in Erie County. This work was performed for Mr. Steve Woodard of Alden State Bank, 13216 Broadway, Alden, NY 14004. Mr. Woodard can be reached at (716) 937-3381 or at swoodard@aldenstate.com.

- 2009 – completed vapor intrusion sub slab air sampling in approximately 100 homes in the Village of Endicott/Town of Union, NY in Broome County as described in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York." This testing was to investigate possible soil vapor intrusion resulting from a historic spill from a local dry cleaning facility. This work was completed for NYSDEC Region 7 for Mr. Benjamin Rung (518) 402-9813.

Pressure Field Extension Testing

Site Number & Name: _____ Structure ID: _____

Sampler Initials & Org: _____ Homeowner Phone Number: _____

Homeowner Name & Address: _____

Owner Occupied: ☐ Yes ☐ No If no, Resident Name and Phone Number: _____

Weather & Outdoor Temperature: _____

Slab Condition: (Circle one)	Poor (major cracks)	Average (some cracks)	Good (minor cracks)	Excellent (cracks sealed)
Floor Penetrations: (Circle all present)	Sump Pit	Floor Drain	Perimeter Drain	Other (Describe): _____
Passive Mitigation Elements:	Drainger	Drainger	Penetrations Sealed	Other (Describe): _____
Standing Water: (Circle one)	Basement is Dry	Floor Penetrations are Damp	Standing Water in Floor Penetrations	Standing Water on Basement Floor

Layout Sketch Completed: ☐ Yes ☐ No Number of Suction Points: _____ Number of Fans: _____

Date of SSDS Install: _____ Fan Model(s): _____ Fan Serial Number(s): _____

Test Point ID:					
Location Description:					
Test Hole Diameter:					
Manometer Type:					
Slab Thickness:					
Sub-Slab Material:					
Sub-Slab Moisture: (Dry, Damp, Saturated)					
Seal Type:					
Test Hole Distance to Nearest Suction Point:					
U-Tube Reading at Nearest Suction Point:					
Test Dates	ΔP	ΔP	ΔP	ΔP	ΔP
Initial: _____					
Follow Up: _____					
Follow Up: _____					
Final: _____					
Drill Holes Sealed:	☐	☐	☐	☐	☐

Mitigation System Installation Record

☐ Structure was sampled previously

System Information

Site No: _____

System ID: _____ Site Name: _____

Owner Name: _____ ☐ Owner Occupied

System Address: _____ Telephone: _____

City: _____ Zip: _____ Alt. Telephone: _____

Contractor Information

Installer Name: _____ Company: _____

Telephone: _____

Building Conditions Building Type: _____

Slab Integrity: ○ Poor ○ Average ○ Good ○ Excellent

Slab Penetrations: ☐ Sump ☐ Floor drain ☐ Perimeter drain ☐ Other

Describe:

Observed Water: ○ Dry ○ Damp ○ Sump only ○ Standing

Describe:

System'Installation

Installation Type: _____ Date Installed: _____

Slab Thickess (inches): _____

Subslab Material: _____ Subslab Moisture: _____

Number of Suction Points: _____ Number of Fans Installed: _____

	☐ Fan #1 Operating	☐ Fan #2 Operating	☐ Fan #3 Operating
Fan Model No(s):			
Fan Serial No(s):			
Final U-Tube Levels:			

Additional Mitigation Elements (check all that apply):

☐ Drainjer ☐ Membrane ☐ Sealed cracks ☐ New floor ☐ Rain cap ☐ Other

Comments:

Communication Testing

Test Method: [ ] Meter Type/Manufacturer: _____

Location	Reading/Result	Dist. From Suction Point (ft)	Passed?
			☐
			☐
			☐
			☐
			☐

System Sketch
(indicate notable features, location of extraction points, and communication test holes)

NORTH

NEW YORK STATE OF OPPORTUNITY. | Department of Environmental Conservation

ATTENTION

Soil vapor mitigation system in operation. Do not alter or disconnect. This monitor measures differential pressure or vacuum provided by the system.

This is a component of the soil vapor mitigation system. **If <u>all</u> gauges are at zero, or, if for any other reason you believe that the system is not working properly, call:**

New York State Department of Environmental Conservation Toll-Free at:

1-888-459-8667

for service or inspection.

	Date
Date of Installation	_____
Date of Maintenance/Inspection	_____
Date of Maintenance/Inspection	_____
Date of Maintenance/Inspection	_____

NEW YORK STATE OF OPPORTUNITY. | Department of Environmental Conservation

ATTENTION

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	Date
Date of Installation	_____
Date of Maintenance/Inspection	_____
Date of Maintenance/Inspection	_____
Date of Maintenance/Inspection	_____

More saving. More doing.

Your Store: **Henrietta #1246**
Use Current Location or find store

RadonAway Model # 23030-1 Internet # 203742247

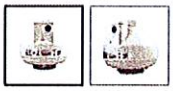
RP145 Radon Mitigation Fan

★★★★★ (44) Write a Review Questions & Answers (4)

- Energy efficient
- Ultra-quiet operation
- Rated for commercial and residential use

PRODUCT NOT SOLD IN STORES

Open Expanded View Click Image to Zoom



PRODUCT OVERVIEW Model # 23030-1 Internet # 203742247

The RadonAway RP145 is the most popular radon mitigation fan in the industry, is intended for use as a component of an active soil depressurization (ASD) system for reducing radon. The RP145 offer higher air flow, energy efficiency and quiet operation. It is ideal for both new construction and retrofit radon systems with a slab or membrane size of up to 2500 sf. This fan is designed for moderate to good air flow, working most effectively with sub slab or sub-material conditions ranging from about 4 inches of clean, size 4-6 gravel to very loose soil. The RP145 is built to resist moisture and can be mounted inside or outside on a 3 in. or 4 in. schedule 40 PVC vent pipe using 3 in. x 4 in. or 4 in. x 4 in. flexible couplings. NOTE: When installing an ASD system for radon reduction, any openings, major cracks and penetrations in the building slab or membrane must be sealed. Fan sizing for retrofit may require professional diagnostics and design.

- Meets all electrical code requirements
- Water-hardened motorized impeller
- Double snap-sealed seams to inhibit radon leakage
- HVI rated
- ETL listed - for indoor or outdoor use (UL equivalent)
- Thermally protected motor
- Engineered thermoplastic housing
- Home Depot Protection Plan:

SPECIFICATIONS

DIMENSIONS

Product Depth (in.)	8.5 in	Product Width (in.)	9.5 in
Product Height (in.)	8.5 in		

DETAILS

Brand/Model Compatibility	None	Product Weight (lb.)	7 lb
HVAC application	Air Treatment	Returnable	90-Day

WARRANTY / CERTIFICATIONS

Manufacturer Warranty	5-year Limited

MORE PRODUCTS WITH THESE FEATURES

Brand: **RadonAway** Review Rating: **4 & Up**

SEARCH