NYSDEC BROWNFIELD CLEANUP PROGRAM
PILOT TEST RESULTS & BASIS OF DESGIN

STANDARD GAGE & COAL STORAGE SITE
NYSDEC SITE #C314131
58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK

PREPARED FOR:

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January 17, 2022
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PVE File #560532

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1.0 INTRODUCTION

The Standard Gage and Coal Storage Brownfield Cleanup Program site (BCP Site #C314131) (the "BCP Site") consists of two (2) tax parcels totaling 2.466 acres located at 58 Parker Avenue (Tax Parcel #131300-6162-62-148369-0000) and 164 Garden Street (Tax Parcel #131300-6162-54-177385-0000) in the City of Poughkeepsie, Dutchess County, New York (Figures 1 & 2).

The planned redevelopment of the BCP Site will entail an adaptive reuse and re-development of the BCP Site and its on-site structures to the extent feasible. Previous environmental investigations have detected chlorinated solvents in the soil vapors located on the 58 Parker Avenue parcel of the BCP Site, which require mitigation.

Partridge Venture Engineering, PC, dba PVE Engineering (PVE) has prepared a Vapor Mitigation Pilot Test Work Plans (PTWP) dated September 23, 2021 on behalf of the Volunteer, Northside Junction, LLC. Data accumulated during that Pilot Test is presented herein and was used to design a Sub-Slab Depressurization System (SSDS) and Soil Vapor Extraction (SVE) system capable of preventing the migration of contaminated vapors into the breathing space of the redeveloped structures and off-site.

2.0 PILOT TEST ACTIVITIES

2.1 Site Preparation

PVE retained a contractor to seal the existing slab with concrete patch to reduce ambient interference in the pilot test. The contractor backfilled previously excavated test pits to the bottom elevation of the existing concrete slab. Former test pits were then sealed with concrete a minimum of 4-inchs thick. Additional cracks and penetrations in the existing concrete slab were sealed with concrete patch or self-leveling concrete products.

2.2 Suction Pit Installation

A total of six (6) suctions pits were installed throughout the on-site structures proposed for redevelopment. Two (2) suction pits were excavated through the concrete slab within each of the following buildings located at 58 Parker Avenue (See Figure 3):

- Building A
- Building B
- Building D

An additional suction pit was installed in an exterior location to the east of Building D. Suction pits in Buildings A, B and D were constructed as a 2-foot by 2-foot opening in the concrete slab and excavated via hand tools to a depth of 2-feet below the elevation of the slab. The exterior suction pit (east of Building D) was excavated to a depth of 4-feet below ground surface. Slotted (0.20-inch) schedule 40 PVC piping was installed vertically into each suction pit (no slotted portions were present above the existing slab or asphalt); annular space surrounding the piping was backfilled with clean ¾-inch stone to the bottom of the existing slab or asphalt. Each suction pit was then sealed at the surface with a minimum of 4-inches of concrete. Suction pit piping extending above the slab or asphalt was plugged with a Fernco-brand cap when not in use. See Figure 3 for Suction Pit locations. See Appendix A for Pilot Test equipment cutsheets.

2.3 Monitoring Point Installation

Monitoring points were installed throughout Buildings A, B and D and exterior locations near the exterior suction pit to determine the radius of influence created by each pit during testing. Monitoring points were installed radially from each suction pit in 10-foot increments. Interior monitoring points were installed by drilling ¼-inch holes through the concrete slab to below the bottom slab elevation; ¼-inch tubing was inserted to the bottom of each hole and brought to the surface. Exterior monitoring points were installed to a depth of 4-feet below ground surface via direct push; ¼-inch tubing was inserted to the bottom of each hole and brought to the surface. Annular space 2-4 feet below ground surface was backfilled with clean sand; the remaining annular space was backfilled with hydrated bentonite. Monitoring point tubing was crimped to create a seal when not in use. See Figure 3 for Monitoring Point locations.

2.4 Pilot Test

A variable speed Obar Systems GBR 76 SOE suction fan (See Appendix A for cut sheet) was connected to each suction pit with a flexible fitting and was exhausted through corrugated vent piping to an exterior location maintaining minimum distances from any fresh-air intakes. The blower was "stepped", via built in speed control, to demonstrate the operating conditions for a range of applied vacuum and flow conditions. Variables such as applied flow, vacuum, and sub-slab vacuum were measured. Suctions pits not in use during testing were plugged with a Fernco-brand cap to prevent ambient influence. Two (2) separate testing events (January and June 2022, respectively) were conducted to confirm initial testing results (pressure differentials) and also to provide the NYSDEC with the requested analytical results from suction pit exhausts.

Key parameters evaluated during the step test included:

- Air flow rates achievable from each pilot study suction pit under given vacuum conditions.
- Amount of vacuum at specified distances from each suction pit (radial distances of vacuum influence).
- Quantitative estimates of VOC emissions from the vapor mitigation system(s) to determine flow rates and/or the need for pre-discharge air treatment.

The extent of the observed radius of influence (ROI) varied between the suction pits, with overlap observed between them. The variation of the extent of ROI is likely due to differences in subsurface lithology, volume of unconsolidated sediments between slab and bedrock, moisture content, preferential pathways, and variations of the competency of the ground surface cover.

Step testing of the suction fan indicated that, although variable between suction pits, the ROI did not significantly increase with higher applied vacuums above a certain point. Constant rate testing indicated that the ROIs were quickly established and did not vary in a measurable way during the duration of the test. Minimum CFM and static pressure needed to induce desired negative pressure was establish and recorded. The data collected from the pilot test at each suction pit is provided in Tables 1A-1G.

It should be noted, Suction Pit 1 located in Building A seized during additional vacuum extraction monitoring on January 13, 2022. PVE presumes moisture accumulated in the slotted piping and froze (See Table 1A). Results from initial performance testing revealed an approximately 20-40-feet ROI at 300 cfm; however, this data cannot be verified with additional testing until the suction pit thaws. Additionally, Monitoring Point D-1 appears to have been installed through a foundation wall and data generated from this location is not believed to be representative of subsurface conditions. PVE's conclusions and recommendations for these locations are further described in Section 4.0, below.

Field tasks were performed using industry-standard health and safety procedures. A site-specific HASP was prepared for use by the field team during all field activities. This plan detailed known

and potential hazards of the Site and field tasks as well as air monitoring and emergency procedures.

3.0 VAPOR MITIGATION EFFLUENT DISCHARGE EVALUATION

The system proposed at 58 Parker Avenue is not intended to remediate source contamination and is intended only to act as a low-pressure barrier to reduce the potential of vapor migration from beneath the building slab into the occupied spaces. The final SSDS design will direct exhaust discharges above the roof of the building and at least 10-feet away from any fresh air intakes. The system design will also comply with system exhaust requirements and discharge limits included in 6 NYCRR Part 212 and the DAR-1 Guidelines for the Evaluation and Control of Ambient Air Contaminants Under Part 212.

PVE conducted an additional testing event in June 2022 during which suction pit exhaust was sampled for VOCs. One (1) suction pit from each proposed system respective to Buildings A, B, D and the exterior SVE (SP-7) was sampled via laboratory provided summa cannister and submitted to a NYSDOH ELAP laboratory for analysis of VOCs via USEPA method TO-15. Data sheets from this sampling event are provided in Tables 1H-1K and Appendix B. Following the receipt of analytical results, PVE calculated emission rates of all individual VOCs detected in the collected exhaust samples. VOCs detected throughout the site were significantly less than 100 pounds per year (lb/year) if collectively exhausted from SSDS fans; the total emission estimates for all VOCs detected were 52 lb/year. Total VOC emissions from the SSDS were 0.006 lb/hour, orders of magnitude less than the 0.5 lb/hour limit. In addition, none of the individual High Toxicity Air Contaminants (HTAC) listed in Part 212 were within an order of magnitude of their respective thresholds. No SGCs were exceeded in the exhaust air from the blower. The mass emission limit and calculated average annual emission rates for PCE, benzene and TCE are all well below the respective HTAC thresholds, as shown in the table below.

Parameter	HTAC Threshold (lb/yr)	Estimated Annual Emission (lb/yr)
PCE	1,000	11.9
Benzene	100	1.04
TCE	500	17.1

Based on the calculations described above and further presented in Table 2, no exhaust treatment system is warranted.

4.0 SSDS BASIS OF DESIGN

The vapor mitigation system design includes five (5) separate SSDSs, each with a fan with exception to Building D and the SVE which will share one (1) common fan. Building C may be manifold together with Building B sub-system if desired by the developer/volunteer. The sub systems will all exit through the roof of the buildings, a fan will be mounted at the roof, and the exhaust shall discharge above the roof line.

Per USEPA guidance, the minimum goal of the vapor mitigation system is to maintain a sub-slab to room vacuum pressure of not less than 0.016-inches water column, beneath the building slab and the exterior SVE location east of Building D. This is generally accepted as an effective sub slab vacuum pressure to sufficiently prevent or reduce vapor intrusion into a building.

This vapor mitigation system design includes the permanent installation of sub-slab pressure monitoring ports throughout on-site structure and in the exterior location of the SVE to verify efficient vacuum. The system design also includes the following elements:

- To allow for point-by-point adjustment of applied vacuum, each extraction point will be fitted with a ball valve prior to any common manifold.
- Each sub-system shall have a monitoring panel with a system pressure gauge.
- The exhaust of each sub-system shall be above the roof and greater than 10 feet away from any opening to the building which it is not at least 2 feet above.

Selected suction fans shall be confirmed via performance monitoring following the installation of sub-grade and above-grade system piping. The SVE system design calls for piping to run through a trench along the eastern boundary of the subject property and west of an adjoining structure.

The sub-membrane depressurization system (SMDS) proposed in the Building C crawl space will be comprised of a moisture and vapor barrier such as a Raven Industries VaporBlock Plus 20, or similar product, installed over trenched depressurization piping in a bed of 3/4-inch stone. This vapor barrier, adhered to concrete walls in accordance with manufacturer specifications, is designed to restrict vapor/gas and moisture intrusion through the ground and concrete slab into the building. The Raven Industries VaporBlock Plus 20 design specifications are provided in Appendix D.

Following the installation of the vapor barrier, testing will be completed to confirm design pressures from under the entire membrane.

Vapor mitigation system design specifications are provided in Appendix C.

5.0 VAPOR MITIGATION OPERATION AND MONITORING

The SSDS and SVE system require the production of an operations and maintenance manual (O&M Manual). The O&M Manual shall incorporate the requirements detailed in this report, the SSDS and SVE final design drawings, and any additional requirements mandated by the NYSDEC & NYSDOH. The O&M Manual shall include the following:

- A description of all system components and operation of the system
- Start up and shut down procedures
- Regular maintenance requirements with a maintenance schedule.
- Monitoring/Testing requirements with a schedule
- A basic operations troubleshooting guide for the system
- Emergency contacts for system maintenance and repair

The complete O&M Manual will be presented in the Site Management Plan (SMP) as an attachment to the Final Engineering Report (FER).

5.2 Vapor Mitigation Monitoring

Following the installation of all sub-systems, start-up performance testing will be conducted to ensure desired pressure differentials beneath all slabs are met. Should any sub-system fail to meet desired pressure differential, system adjustment/amendments may be required including fan substitutions and/or installation of additional suction pits or lateral piping. Design modifications will be presented in the Final Engineering Report.

The performance of the vapor mitigation system will be monitored during a quarterly inspection, for the first year, by the contracted system operator. After which, a semi-annual inspection will take place. Reductions to monitoring frequency will be reviewed and approved by NYSDEC and NYSDOH before occurring. The inspections will involve collecting system vacuum readings from gauges.

5.3 Vapor Mitigation Optimization and Shutdown

The combined SSDS and SVE system is expected to operate until on-site contaminants in the sub surface of the site no longer pose a vapor intrusion risk. At such a time that it is believed vapor intrusion risk no longer exists, vapor intrusion testing shall be performed in each of the tenant spaces in the target area which include a sub-slab sample and a corresponding indoor air sample, with the SSDS and SVE system off. Vapor intrusion testing shall be performed during the "Heating Season", November 15 - March 15. Analysis of the samples for VOCs shall be by EPA Method TO-15. Results of the vapor intrusion testing shall be compared to the New York State Department for Health Vapor Intrusion Guidance (2006) decision matrices. When all of the test results achieve a "no further action" result, the vapor mitigation system may be decommissioned permanently, with NYSDEC and NYSDOH approval. Any attempt to decommission portions of the system, should be fully supported by additional test data.

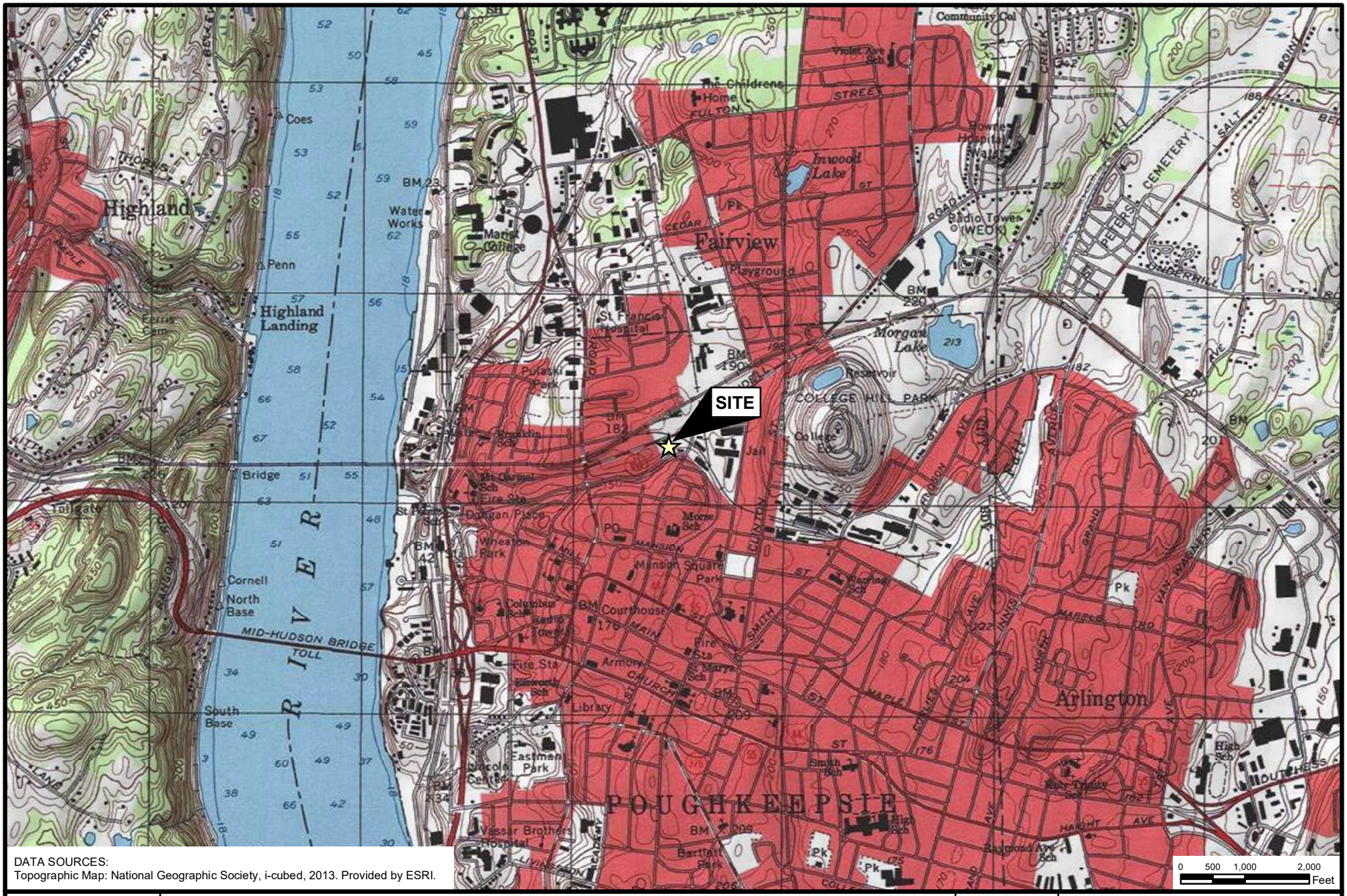
6.0 CAMP MONITORING

Installation of the vapor mitigation system includes the installation of pipe in trenches cut through the concrete slabs inside the building and through asphalt pavement east of Building D. A Community Air Monitoring Plan (CAMP) has been developed to be used during the installation of the systems and is attached to the Remedial Action Work Plan (RAWP) as Appendix D.

7.0 SOIL MANAGEMENT

Installation of the SSDS and SVE system include excavation of sub-surface soils. Excavated soils shall be handled in accordance with the RAWP.

FIGURE 1
SITE LOCATION MAP



DATA SOURCES:
Topographic Map: National Geographic Society, i-cubed, 2013. Provided by ESRI.

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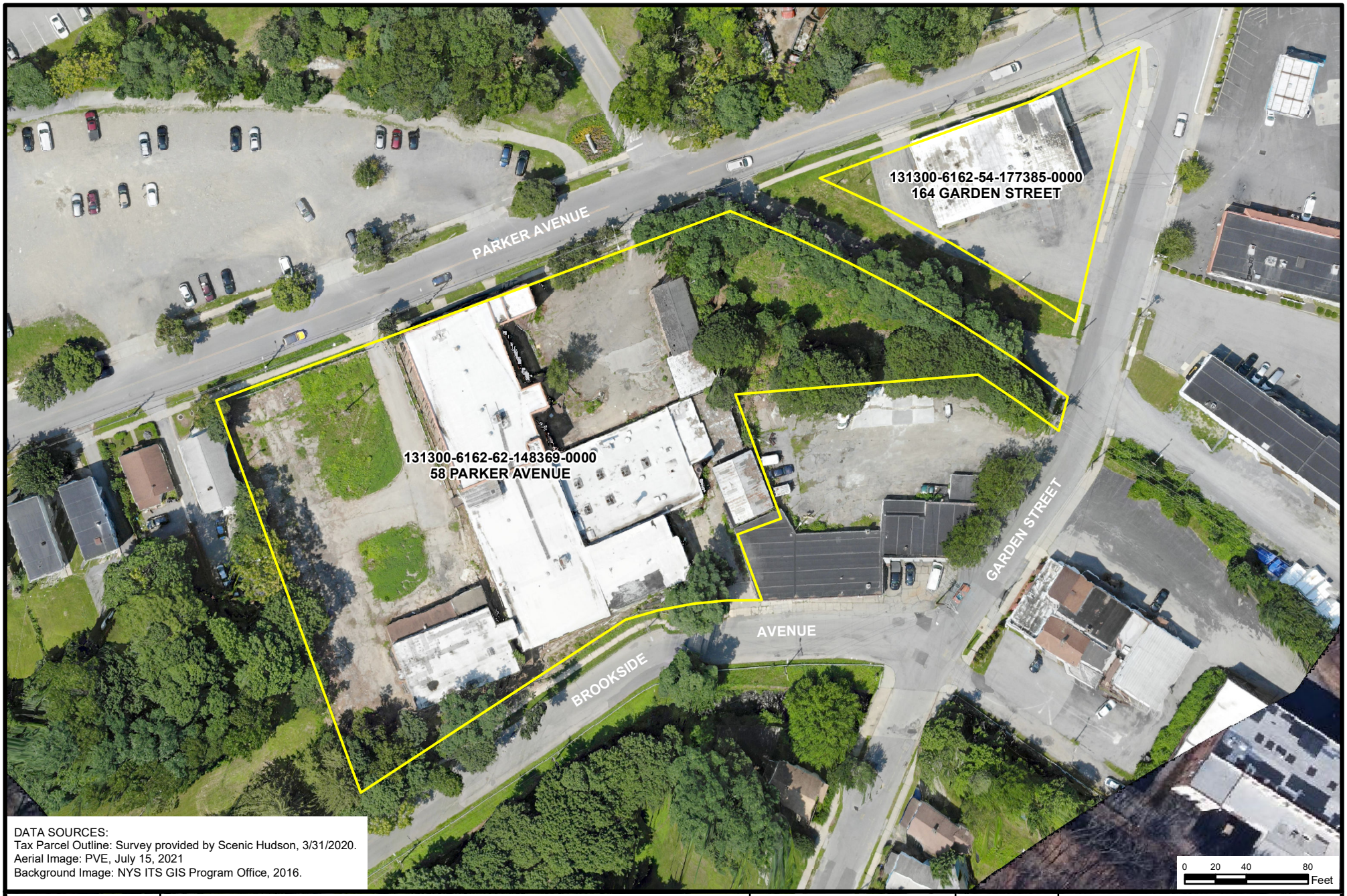
SITE LOCATION MAP

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

PROJECT NO. 560532	**FIGURE 1**
	DATE: 1/27/2020
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

FIGURE 2
SELECTED SITE FEATURES



DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020.
Aerial Image: PVE, July 15, 2021
Background Image: NYS ITS GIS Program Office, 2016.

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SELECTED SITE FEATURES

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

TAX PARCEL / BCP PROPERTY OUTLINE

PROJECT NO. 560532	**FIGURE 2**
	DATE: 07/16/2021
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

FIGURE 3
PILOT TEST EXTRACTION WELLS AND MONITORING POINTS

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS & SUCTION PITS

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

TAX PARCEL / BCP PROPERTY OUTLINE
SUCTION PIT
MONITORING POINT

PROJECT NO. 560532	**FIGURE 3**
	DATE: 01/05/2021
	SCALE: AS INDICATED | DATUM: NAD83
	PROJECTION: STATE PLANE NY EAST (FT)
	ALL LOCATIONS APPROXIMATE

FIGURE 4
RADIUS OF INFLUENCE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 1

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

SUCTION PIT SP-1 SIEZED/FAILED DUE TO FREEZING BASEMENT CONDITIONS

PROJECT NO. 560532

FIGURE 4A

DATE: 01/17/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 2

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 140 CPFM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025

PROJECT NO. 560532

FIGURE 4B

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 3

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 92 CPFM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025

PROJECT NO. 560532

FIGURE 4C

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 4

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 92 CPFM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025

PROJECT NO. 560532

FIGURE 4D

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 5

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 85 CFPM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025

PROJECT NO. 560532

FIGURE 4E

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 6

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 60 CPFM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025

PROJECT NO. 560532

FIGURE 4F

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

DATA SOURCES:
Tax Parcel Outline: Survey provided by Scenic Hudson, 3/31/2020
Aerial Image: PVE, July 15, 2021

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SUB-SLAB PRESSURE MONITORING POINTS SUCTION PIT 7 (EXT. PIT)

58 PARKER AVENUE & 164 GARDEN STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK 12601

LEGEND

- MONITORING POINT
- SUCTION PIT
- TAX PARCEL / BCP PROPERTY OUTLINE

AREA OF INFLUENCE AT 42 CPFM (IN. OF WATER COLUMN)

- -0.004 to -0.025
- GT -0.025
- - 0.004 to -0.025 (INFERRED)
- GT -0.025 (INFERRED)

PROJECT NO. 560532

FIGURE 4G

DATE: 01/18/2022

SCALE: AS INDICATED | **DATUM: NAD83**

PROJECTION: STATE PLANE NY EAST (FT)

ALL LOCATIONS APPROXIMATE

TABLES 1A-1G
PILOT TEST READINGS

TABLE 1A

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-1

Airflow / Vacuums: **Unit:**

	Suction Point		SP-1								
Pilot Tube & Fan	Obar Dial Indicator	Dial	NA								
	Vacuum	"WC	NA								
	Temperature	°F	NA								
	Air Velocity (Actual)	fpm	NA								
	Air Velocity (Actual)	cfpm	NA								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-1 before vacuum**	**SP-1 during vacuum**	**SP-1 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		A-9	A-8	A-7	A-6	A-5	A-4	A-3	A-2	A-1
at 0 cfpm	Background ("WC)	0.003	1.111	0.004	0.000	1.704	0.010	0.000	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	0
at ___ cfpm	Static Pressure ("WC)	NA	NA	NA	NA	NA	NA	NA	NA	NA

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1B

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-2

Airflow / Vacuums:	**Unit:**									
Suction Point		**SP-2**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	4.5								
	Vacuum	"WC	-1.25								
	Temperature	°F	37.9								
	Air Velocity (Actual)	fpm	1,052								
	Air Velocity (Actual)	cfpm	140								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-2 before vacuum**	**SP-2 during vacuum**	**SP-2 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums:	**Unit:**									
Monitoring Point		**A-9**	**A-8**	**A-7**	**A-6**	**A-5**	**A-4**	**A-3**	**A-2**	**A-1**
at 0 cfpm	Background ("WC)	0.003	1.111	0.004	0.000	1.704	0.010	0.000	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	0
at 140 cfpm	Static Pressure ("WC)	-0.037	-0.016	-0.215	-0.090	0.000	0.003	-0.002	0.000	-0.001

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1C

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-3

Airflow / Vacuums: **Unit:**

	Suction Point		**SP-3**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	4.5								
	Vacuum	"WC	-1.1								
	Temperature	°F	37.7								
	Air Velocity (Actual)	fpm	1,050								
	Air Velocity (Actual)	cfpm	92								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-3 before vacuum**	**SP-3 during vacuum**	**SP-3 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		**D-1**	**B-6**	**B-5**	**B-7**	**B-4**	**B-3**	**B-2**	**B-1**	**D-4**
at 0 cfpm	Background ("WC)	0.000	0.000	0.001	0.000	0.001	0.000	-0.005	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	1.0
at 92 cfpm	Static Pressure ("WC)	0.000	-0.025	-0.033	-0.025	-0.076	-0.122	-0.160	-0.059	-0.001

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1D

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-4

Airflow / Vacuums:	Unit:									
Suction Point		SP-4								
Pilot Tube & Fan	Obar Dial Indicator	Dial	1							
	Vacuum	"WC	-1.84							
	Temperature	°F	37.9							
	Air Velocity (Actual)	fpm	1,060							
	Air Velocity (Actual)	cfpm	92							
	Dilution Valve	% Open	0							
	Flow Control Valve	% Open	100							

Vapor Concentrations:	Unit:	SP-4 before vacuum	SP-4 during vacuum	SP-4 after vacuum						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums:	Unit:									
Monitoring Point		D-1	B-6	B-5	B-7	B-4	B-3	B-2	B-1	D-4
at 0 cfpm	Background ("WC)	0.000	0.000	0.001	0.000	0.001	0.000	-0.005	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	1.0
at 92 cfpm	Static Pressure ("WC)	0.000	-0.265	-0.280	-0.260	-0.138	-0.074	-0.018	-0.062	-0.030

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1E

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-5

Airflow / Vacuums: **Unit:**

	Suction Point		SP-5	SP-5							
Pilot Tube & Fan	Obar Dial Indicator	Dial	4	4.5							
	Vacuum	"WC	-1.12	-1.31							
	Temperature	°F	37.2	37.2							
	Air Velocity (Actual)	fpm	910	1,000							
	Air Velocity (Actual)	cfpm	78	85							
	Dilution Valve	% Open	0	0							
	Flow Control Valve	% Open	100	100							

Vapor Concentrations:	**Unit:**	**SP-5 before vacuum**	**SP-5 during vacuum**	**SP-5 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0.3	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		D-3	D-2	D-1	B-7	D-4				
at 0 cfpm	Background ("WC)	0.000	0.000	0.000	0.000	0.000				
at 0 cfpm	PID (PPM)	0	0	0	0	1.0				
at 78 cfpm	Static Pressure ("WC)	-0.002	-0.061	0.000	0.000	-0.005				
at 85 cfpm	Static Pressure ("WC)	-0.004	-0.072	0.000	0.000	-0.006				

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1F

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-6

Airflow / Vacuums: **Unit:**

	Suction Point		**SP-6**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	3								
	Vacuum	"WC	-0.85								
	Temperature	°F	39.3								
	Air Velocity (Actual)	fpm	640								
	Air Velocity (Actual)	cfpm	60								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-6 before vacuum**	**SP-6 during vacuum**	**SP-6 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		**D-3**	**D-2**	**D-1**	**B-7**	**D-4**				
at 0 cfpm	Background ("WC)	0.000	0.000	0.000	0.000	0.000				
at 0 cfpm	PID (PPM)	0	0	0	0	1.0				
at 60 cfpm	Static Pressure ("WC)	-0.044	-0.026	0.000	0.000	0.000				

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1G

Project Address: 58 Parker Avenue
Date: 1/13/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-7

Airflow / Vacuums: **Unit:**

	Suction Point		SP-7								
Pilot Tube & Fan	Obar Dial Indicator	Dial	1.85								
	Vacuum	"WC	-0.567								
	Temperature	°F	44								
	Air Velocity (Actual)	fpm	486								
	Air Velocity (Actual)	cfpm	42								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-7 before vacuum**	**SP-7 during vacuum**	**SP-7 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0.2	0.6	0.4						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		Ext.1	Ext.2	D3						
at 0 cfpm	Background ("WC)	0.000	0.000	0.000						
at 0 cfpm	PID (PPM)	2	1.4	0						
at 42 cfpm	Static Pressure ("WC)	-0.085	-0.050	0.000						

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1H

Project Address: 58 Parker Avenue
Date: 6/7/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-2

Airflow / Vacuums: **Unit:**

	Suction Point		**SP-2**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	4.5								
	Vacuum	"WC	-1.33								
	Temperature	°F	70								
	Air Velocity (Actual)	fpm	1,002								
	Air Velocity (Actual)	cfpm	139								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-2 before vacuum**	**SP-2 during vacuum**	**SP-2 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		**A-9**	**A-8**	**A-7**	**A-6**	**A-5**	**A-4**	**A-3**	**A-2**	**A-1**
at 0 cfpm	Background ("WC)	0.003	1.111	0.004	0.000	1.704	0.010	0.000	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	0
at 139 cfpm	Static Pressure ("WC)	-0.033	-0.017	-0.230	-0.086	0.000	0.003	-0.001	0.000	-0.001

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1I

Project Address: 58 Parker Avenue
Date: 6/7/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-3

Airflow / Vacuums: **Unit:**

	Suction Point		**SP-3**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	4.5								
	Vacuum	"WC	-1.11								
	Temperature	°F	72.1								
	Air Velocity (Actual)	fpm	1,060								
	Air Velocity (Actual)	cfpm	92								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-3 before vacuum**	**SP-3 during vacuum**	**SP-3 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		**D-1**	**B-6**	**B-5**	**B-7**	**B-4**	**B-3**	**B-2**	**B-1**	**D-4**
at 0 cfpm	Background ("WC)	0.000	0.000	0.001	0.000	0.001	0.000	-0.005	0.000	0.000
at 0 cfpm	PID (PPM)	0	0	0	0	0	0	0	0	1.0
at 92 cfpm	Static Pressure ("WC)	0.000	-0.023	-0.035	-0.026	-0.080	-0.133	-0.172	-0.063	-0.001

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1J

Project Address: 58 Parker Avenue
Date: 6/7/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-6

Airflow / Vacuums: **Unit:**

	Suction Point		**SP-6**								
Pilot Tube & Fan	Obar Dial Indicator	Dial	3								
	Vacuum	"WC	-0.88								
	Temperature	°F	72.1								
	Air Velocity (Actual)	fpm	640								
	Air Velocity (Actual)	cfpm	62								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-6 before vacuum**	**SP-6 during vacuum**	**SP-6 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0	0	0						

Monitoring Point Vacuums: **Unit:**

Monitoring Point		**D-3**	**D-2**	**D-1**	**B-7**	**D-4**				
at 0 cfpm	Background ("WC)	0.000	0.000	0.000	0.000	0.000				
at 0 cfpm	PID (PPM)	0	0	0	0	1.0				
at 62 cfpm	Static Pressure ("WC)	-0.051	-0.027	0.000	0.000	0.000				

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 1K

Project Address: 58 Parker Avenue
Date: 6/7/2022
Location: Poughkeepsie, NY
Data Collector: Trevor Treglia
Extraction Point: SP-7

Airflow / Vacuums:	**Unit:**										
Suction Point		**SP-7**									
Pilot Tube & Fan	Obar Dial Indicator	Dial	1.85								
	Vacuum	"WC	-0.56								
	Temperature	°F	79.8								
	Air Velocity (Actual)	fpm	470								
	Air Velocity (Actual)	cfpm	42								
	Dilution Valve	% Open	0								
	Flow Control Valve	% Open	100								

Vapor Concentrations:	**Unit:**	**SP-7 before vacuum**	**SP-7 during vacuum**	**SP-7 after vacuum**						
Multi-Meter - Total Volatiles	PPM	0.2	1.3	0.4						

Monitoring Point Vacuums:	**Unit:**									
Monitoring Point		**Ext.1**	**Ext.2**							
at 0 cfpm	Background ("WC)	0.000	0.000							
at 0 cfpm	PID (PPM)	2	1.4							
at 42 cfpm	Static Pressure ("WC)	-0.058	-0.033							

General Notes & Comments:

Meets USEPA requirement of -0.016" WC
Meets industry minmum of -0.004" WC
Does not demonstrate effective negative pressure influence
Pressure readings collection in inches water column ("WC).

TABLE 2
VOC EMISSIONS
CALCULATIONS

Table 2 - VOCs and Air Toxic Emission Estimates
Compared to NYDEC HTAC Thresholds
58 Parker Avenue, 164 Garden Street, Poughkeepsie, NY
PVE #560532

Building A

Pilot Test and Estimated Exhaust CFM 400
Estimated Exhaust Annual Hours 8760

	HTAC Limit lb/yr	AGCs	SGCs	CAS RN	6/7/2022 58 Parker Ave./ Int. Exhaust A Test Duration: 2 hours			Estimated Emissions lb/hr	lb/yr	tpy
Benzyl Chloride	25	2.00E-02	240	100-44-7	**0.48**	ug/m3		**7.2E-07**	**0.0063**	**3.1E-06**
1,2-Dibromoethane (Ethylene Dibromide)	5	1.70E-03		106-93-4	**0.71**	ug/m3		**1.1E-06**	**0.0093**	**4.7E-06**
1,3-Butadiene	25	3.30E-02		106-99-0	**0.61**	ug/m3		**9.1E-07**	**0.0080**	**4.0E-06**
1,2-Dichloroethane	100	3.80E-02		107-06-2	**0.37**	ug/m3		5.5E-07	0.0049	**2.4E-06**
Acrylonitrile	25	1.50E-02		107-13-1	**0.20**	ug/m3		**3.0E-07**	**0.0026**	**1.3E-06**
Tetrachloroethylene (PCE)	1000	3.80	300	127-18-4	**0.63**	ug/m3		9.4E-07	0.0083	4.1E-06
Carbon Tetrachloride	100	1.70E-01	1900	56-23-5	0.41	ug/m3		6.1E-07	0.0054	2.7E-06
Vinyl Bromide	500	3.00		593-60-2	**0.40**	ug/m3		**6.0E-07**	**0.0052**	**2.6E-06**
Chloroform	100	14.70	150	67-66-3	5.1	ug/m3		7.6E-06	0.067	3.3E-05
Benzene	100	1.30E-01	27	71-43-2	3.6	ug/m3		5.4E-06	0.047	2.4E-05
Vinyl Chloride	100	1.10E-01	180000	75-01-4	**0.12**	ug/m3		**1.8E-07**	**0.0016**	**7.9E-07**
1,2-Dichloropropane (Propylene Dichloride)	1000	4.00		78-87-5	**0.43**	ug/m3		**6.4E-07**	**0.0056**	**2.8E-06**
1,1,2-Trichloroethane	100	1.40		79-00-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Trichloroethylene (TCE)	500	2.10E-01	20	79-01-6	8.5	ug/m3		1.3E-05	0.11	5.6E-05
1,1,2,2-Tetrachloroethane	1000	16.00		79-34-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Total VOC					281	ug/m3		4.2E-04	3.7	1.8E-03

0.83 Value less than detection limit.
When data set is all ND, both max and average values are set at the highest detection limit for emission calculations.

Building B

Pilot Test and Estimated Exhaust CFM 400
Estimated Exhaust Annual Hours 8760

	HTAC Limit lb/yr	AGCs	SGCs	CAS RN	6/7/2022 58 Parker Ave./ Int. Exhaust B Test Duration: 2 hours			Estimated Emissions lb/hr	lb/yr	tpy
Benzyl Chloride	25	2.00E-02	240	100-44-7	**0.48**	ug/m3		**7.2E-07**	**0.0063**	**3.1E-06**
1,2-Dibromoethane (Ethylene Dibromide)	5	1.70E-03		106-93-4	**0.71**	ug/m3		**1.1E-06**	**0.0093**	**4.7E-06**
1,3-Butadiene	25	3.30E-02		106-99-0	**0.61**	ug/m3		**9.1E-07**	**0.0080**	**4.0E-06**
1,2-Dichloroethane	100	3.80E-02		107-06-2	**0.37**	ug/m3		5.5E-07	0.0049	**2.4E-06**
Acrylonitrile	25	1.50E-02		107-13-1	**0.20**	ug/m3		**3.0E-07**	**0.0026**	**1.3E-06**
Tetrachloroethylene (PCE)	1000	3.80	300	127-18-4	8.8	ug/m3		1.3E-05	0.12	5.8E-05
Carbon Tetrachloride	100	1.70E-01	1900	56-23-5	0.35	ug/m3		5.2E-07	0.0046	2.3E-06
Vinyl Bromide	500	3.00		593-60-2	**0.40**	ug/m3		**6.0E-07**	**0.0052**	**2.6E-06**
Chloroform	100	14.70	150	67-66-3	3.0	ug/m3		4.5E-06	0.039	2.0E-05
Benzene	100	1.30E-01	27	71-43-2	6.2	ug/m3		9.3E-06	0.081	4.1E-05
Vinyl Chloride	100	1.10E-01	180000	75-01-4	**0.12**	ug/m3		**1.8E-07**	**0.0016**	**7.9E-07**
1,2-Dichloropropane (Propylene Dichloride)	1000	4.00		78-87-5	**0.43**	ug/m3		**6.4E-07**	**0.0056**	**2.8E-06**
1,1,2-Trichloroethane	100	1.40		79-00-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Trichloroethylene (TCE)	500	2.10E-01	20	79-01-6	130	ug/m3		1.9E-04	1.7	8.5E-04
1,1,2,2-Tetrachloroethane	1000	16.00		79-34-5	**0.63**	ug/m3		**9.4E-07**	**0.008**	**4.1E-06**
Total VOC					539	ug/m3		8.1E-04	7.1	3.5E-03

0.83 Value less than detection limit.
When data set is all ND, both max and average values are set at the highest detection limit for emission calculations.

Table 2 - VOCs and Air Toxic Emission Estimates
Compared to NYDEC HTAC Thresholds
58 Parker Avenue, 164 Garden Street, Poughkeepsie, NY
PVE #560532

Building D

Pilot Test and Estimated Exhaust CFM 400
Estimated Exhaust Annual Hours 8760

	HTAC Limit lb/yr	AGCs	SGCs	CAS RN	6/7/2022 58 Parker Ave./ Int. Exhaust D Test Duration: 2 hours			Estimated Emissions lb/hr	lb/yr	tpy
Benzyl Chloride	25	2.00E-02	240	100-44-7	**0.48**	ug/m3		**7.2E-07**	**0.0063**	**3.1E-06**
1,2-Dibromoethane (Ethylene Dibromide)	5	1.70E-03		106-93-4	**0.71**	ug/m3		**1.1E-06**	**0.0093**	**4.7E-06**
1,3-Butadiene	25	3.30E-02		106-99-0	**0.61**	ug/m3		**9.1E-07**	**0.0080**	**4.0E-06**
1,2-Dichloroethane	100	3.80E-02		107-06-2	**0.37**	ug/m3		5.5E-07	0.0049	**2.4E-06**
Acrylonitrile	25	1.50E-02		107-13-1	**0.20**	ug/m3		**3.0E-07**	**0.0026**	**1.3E-06**
Tetrachloroethylene (PCE)	1000	3.80	300	127-18-4	230	ug/m3		3.4E-04	3.0	1.5E-03
Carbon Tetrachloride	100	1.70E-01	1900	56-23-5	0.38	ug/m3		5.7E-07	0.0050	2.5E-06
Vinyl Bromide	500	3.00		593-60-2	**0.40**	ug/m3		**6.0E-07**	**0.0052**	**2.6E-06**
Chloroform	100	14.70	150	67-66-3	1.5	ug/m3		2.2E-06	0.020	9.8E-06
Benzene	100	1.30E-01	27	71-43-2	4.5	ug/m3		6.7E-06	0.059	3.0E-05
Vinyl Chloride	100	1.10E-01	180000	75-01-4	**0.12**	ug/m3		**1.8E-07**	**0.0016**	**7.9E-07**
1,2-Dichloropropane (Propylene Dichloride)	1000	4.00		78-87-5	**0.43**	ug/m3		**6.4E-07**	**0.0056**	**2.8E-06**
1,1,2-Trichloroethane	100	1.40		79-00-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Trichloroethylene (TCE)	500	2.10E-01	20	79-01-6	320	ug/m3		4.8E-04	4.2	2.1E-03
1,1,2,2-Tetrachloroethane	1000	16.00		79-34-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Total VOC					1,119	ug/m3		1.7E-03	15	7.3E-03

0.83 Value less than detection limit.
When data set is all ND, both max and average values are set at the highest detection limit for emission calculations.

Exhaust Exterior (SVE)

Pilot Test and Estimated Exhaust CFM 400
Estimated Exhaust Annual Hours 8760

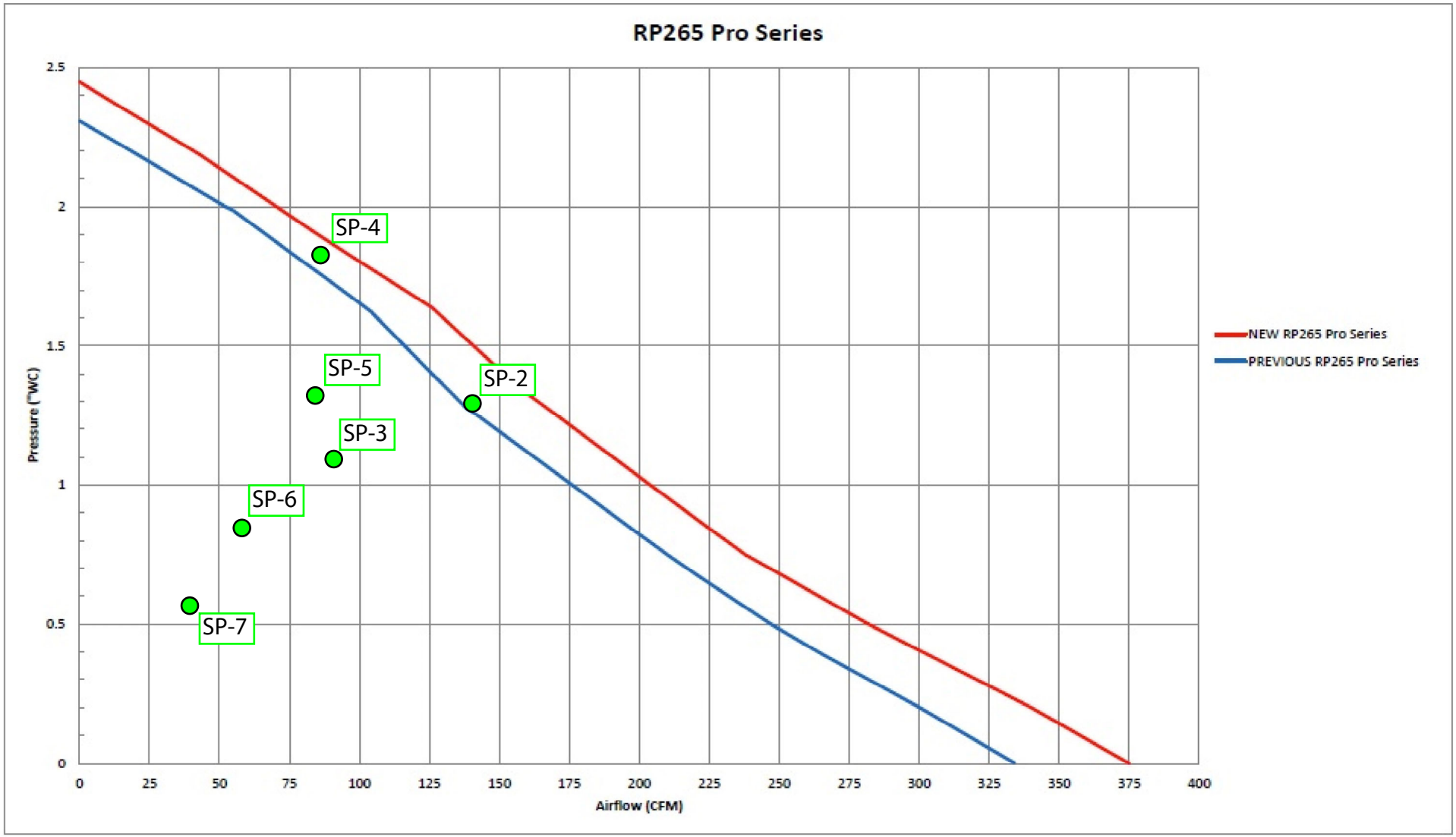
	HTAC Limit lb/yr	AGCs	SGCs	CAS RN	6/7/2022 58 Parker Ave./ Int. Exhaust Out Test Duration: 2 hours			Estimated Emissions lb/hr	lb/yr	tpy
Benzyl Chloride	25	2.00E-02	240	100-44-7	**0.48**	ug/m3		**7.2E-07**	**0.0063**	**3.1E-06**
1,2-Dibromoethane (Ethylene Dibromide)	5	1.70E-03		106-93-4	**0.71**	ug/m3		**1.1E-06**	**0.0093**	**4.7E-06**
1,3-Butadiene	25	3.30E-02		106-99-0	**0.61**	ug/m3		**9.1E-07**	**0.0080**	**4.0E-06**
1,2-Dichloroethane	100	3.80E-02		107-06-2	**0.37**	ug/m3		5.5E-07	0.0049	**2.4E-06**
Acrylonitrile	25	1.50E-02		107-13-1	**0.20**	ug/m3		**3.0E-07**	**0.0026**	**1.3E-06**
Tetrachloroethylene (PCE)	1000	3.80	300	127-18-4	87	ug/m3		1.3E-04	1.1	5.7E-04
Carbon Tetrachloride	100	1.70E-01	1900	56-23-5	0.33	ug/m3		4.9E-07	0.0043	2.2E-06
Vinyl Bromide	500	3.00		593-60-2	**0.40**	ug/m3		**6.0E-07**	**0.0052**	**2.6E-06**
Chloroform	100	14.70	150	67-66-3	5.1	ug/m3		7.6E-06	0.067	3.3E-05
Benzene	100	1.30E-01	27	71-43-2	11	ug/m3		1.6E-05	0.14	7.2E-05
Vinyl Chloride	100	1.10E-01	180000	75-01-4	**0.12**	ug/m3		**1.8E-07**	**0.0016**	**7.9E-07**
1,2-Dichloropropane (Propylene Dichloride)	1000	4.00		78-87-5	**0.43**	ug/m3		**6.4E-07**	**0.0056**	**2.8E-06**
1,1,2-Trichloroethane	100	1.40		79-00-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Trichloroethylene (TCE)	500	2.10E-01	20	79-01-6	2,800	ug/m3		4.2E-03	37	1.8E-02
1,1,2,2-Tetrachloroethane	1000	16.00		79-34-5	**0.63**	ug/m3		**9.4E-07**	**0.0083**	**4.1E-06**
Total VOC					4,108	ug/m3		6.2E-03	54	2.7E-02

0.83 Value less than detection limit.
When data set is all ND, both max and average values are set at the highest detection limit for emission calculations.

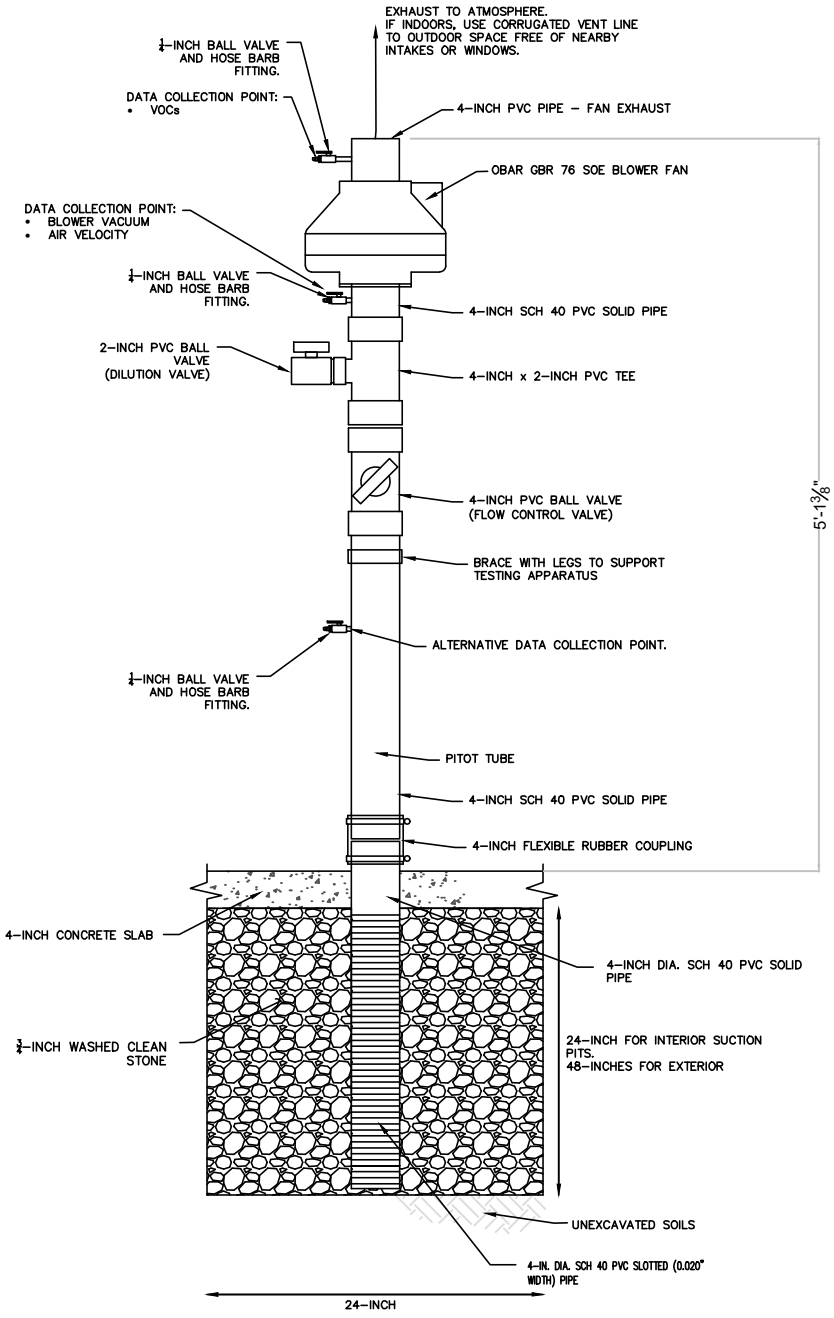
TABLE 3

FAN CURVE

TABLE 3 - FAN CURVE FOR RADONAWAY RP265
PILOT TEST RESULTS OVERLAY FROM 1/13/2022 TEST



APPENDIX A
PILOT TEST EQUIPMENT
CUT SHEETS



TESTING APPARATUS

Property of
PVE, LLC

Waterfront Corporate Park III, Suite 101
2000 Georgetowne Drive
Sewickley, PA 15143

P: 724-444-1100
F: 724-444-1104
www.pve-llc.com

Civil Engineering | Land Development | Structure Design
Land Planning | Landscape Architecture | Environmental

DATE:	12/3/2021
SCALE:	N.T.S.
PROJECT NUMBER:	---

EXHIBIT "A"

TECHNICAL DATA

Fluke 922 Airflow Meter/Kit

Key features

Fluke 922 was designed and built for how (and where) you do your job, with performance, ruggedness and ease of use, setting the Fluke 922 apart from the competition. The bright white display and ruggedized holster and wrist strap let you take the Fluke 922 into less than ideal environments. The color-coded hoses help you keep track of where your readings are coming from. The simple, intuitive interface means you can measure pressure, velocity, or airflow at the push of a button. The Fluke 922 helps you analyze airflow. Easily.

- Powerful meter provides differential and static pressure, air velocity and flow readings
- Convenient colored hoses help proper interpretation of pressure readings
- Easy to use without sacrificing performance
- Bright, backlit display for clear viewing in all environments
- User-defined duct shape and size for maximum airflow accuracy
- Resolution down to 0.001 in H_2O
- 99 point data storage capacity
- Min/Max/Average/Hold functions for easy data analysis
- Auto power off saves battery life

Product overview: Fluke 922 Airflow Meter/Kit

Analyze airflow. Easily. The 922 Micromanometer.

Today's HVAC technicians want a simple solution for diagnosing ventilation issues. Differential pressure measurements only tell part of the story. Technicians also want to measure air velocity and flow, without having to resort to expensive, difficult to use, specialist tools. The Fluke 922 makes airflow measurements easy by combining three tools: differential pressure,

airflow, and velocity into a single, rugged meter.

Use the Fluke 922 micromanometer to:

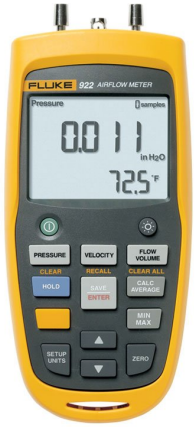
- Measure pressure drops across key HVAC equipment to drive peak performance and extend equipment life
- Match ventilation to occupant loads
- Monitor indoor vs. outdoor pressure relationships and manage the building envelope
- Promote indoor comfort and quality
- Perform duct traversals for accurate airflow readings

Specifications: Fluke 922 Airflow Meter/Kit

Technical Specifications		
Air pressure	Range / Resolution / Accuracy	±4000 Pascals / 1 Pascal / ±1% + 1 Pascal
		±16 inH_2O/ 0.001 inH_2O/±1% + 0.01 inH_2O
		±400 mmH_2O/ 0.1 mmH_2O / ±1% + 0.1 mmH_2O
		±40 mbar /0.01 mbar / ±1% + 0.01 mbar
		±0.6 psi / 0.0001 psi /±1% + 0.0001 psi
Air velocity	Range / Resolution / Accuracy	250 to 16,000 fpm / 1 fpm / ±2.5% of reading at 2000 fpm (10.00 m/s)
		1 to 80 m/s / 0.001 m/s / ±2.5% of reading at 2000 fpm (10.00 m/s)
Air flow (volume)	Range / Resolution / Accuracy	0 to 99,999 cfm / 1 cfm / Accuracy is a function of velocity and duct size
		0 to 99,999 / 1 m^3/hr / Accuracy is a function of velocity and duct size
		0 to 99,999 l/s / 1 l/s / Accuracy is a function of velocity and duct size
Temperature	Range / Resolution / Accuracy	0°C to 50°C / ±1% + 2°C / 0.1°C
		32°F to 122°F / ±1% + 4°F / 0.1°F
General Specifications		
Operating temperature	0°C to +50°C (+32°F to +122°F)	
Storage temperature	-40°C to +60°C (-40°F to +140°F)	
Relative humidity	0% to 90%, non-condensing	
IP rating	IP40	
Operating altitude	2000 m	
Storage altitude	12000 m	
EMI, RFI, EMC	Meets requirements for EN61326-1	
Vibration	MIL-PREF-28800F, Class 3	
Max pressure at each port	10 psi	
Data storage capacity	99 readings	

Warranty	2 years
Power, battery life	Four AA batteries
Battery life	280 hours without backlight, 60 hours with backlight

Ordering information



Fluke-922/KIT

Fluke. *Keeping your world up and running.®*

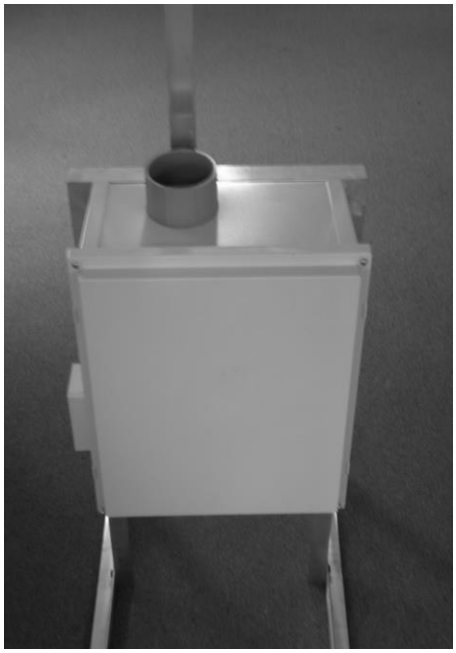
Fluke Corporation
PO Box 9090, Everett, WA 98206 U.S.A.

For more information call:
In the U.S.A. (800) 443-5853
In Canada (800) 36-FLUKE
From other countries +1 (425) 446-5500
www.fluke.com

THE OBAR GBR76

COMPACT RADIAL BLOWER

Based on 25 years of experience and 2 years of research and development, the patent pending GBR series of compact radial blowers provide the perfect combination of performance and design.



GBR76 WITH ROOF MOUNT

PERFORMANCE

- GBR76 SOE 16" WC @ 0 Max flow 155 CFM.
- GBR76 UD 40" WC @ 0 Max flow 195 CFM.
- Built in speed control to customize performance.
- Condensate bypass built in.
- 12 month warranty - 40,000 hr sealed bearings.

DESIGN

- Our modular design means the blower and manifold assembly can be removed and replaced as a unit. This makes repairs cost effective and easy and allows contractors to upgrade systems simply by swapping assemblies.
- The GBR series is based on a bypass blower designed to handle combustible materials.
- The housing is not required to be air tight, so you can add gauges and alarms without compromising the system.
- Built in condensate bypass.
- Built in speed control.
- Quick disconnect electrical harness.
- All UL listed components including UL listed enclosure for outside use.
- Wall fastening lugs included.
- GBR series roof and wall mounts available to quickly configure the blowers for your installation while providing a custom built look.
- Compact design 16"x 14"x 8" weighing only 18 lbs.
- 3" schedule 40 inlet and exhaust.
- Universal Drive model accepts voltage from 120-240V without alteration

COST	GBR76 SOE	GBR76 UD
COMPLETE UNIT	**$1289.00**	**$1489.00**
3 YEAR WARRANTY	**$450.00**	**$550.00**

OBAR SYSTEMS INC 2969 ROUTE 23 SOUTH NEWFOUNDLAND NJ 07435 800 949 6227

GBR76 SOE	0”	2”	4”	6”	8”	10”	12”	16”	Wattage
SOE 16	150	140	129	118	105	90	75	35	150-320
SOE 12	125	115	100	83	62	39	0		110-200
SOE 8	105	90	70	42	0				60-120
SOE 4	75	50	0						37-50

GBR SOE performance using built in potentiometer set at sealed vacuums of 16, 12, 8, and 4” WC

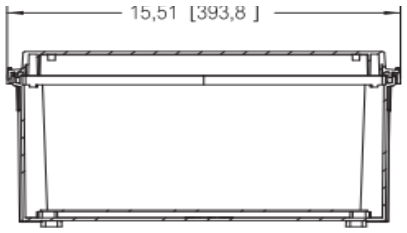
GBR76 UD	0”	10”	20”	30”	37”	Wattage
110V	195	158	118	63	20	700-870
220V	197	162	130	89	50	800-1100

Blower Specifications

Notes:

- **Input Voltage Range:** 108-132 Volts AC RMS, 50/60 Hz, single phase.
- **Input Current:** 6 amps AC RMS
- **Operating Temperature (Ambient Air and Working Air):** 0°C to 50°C
- **Storage Temperature:** -40°C to 85°C
- **Dielectric Testing:** 1500 Volts AC RMS 60 Hz applied for one second between input pins and ground, 3mA leakage maximum.
- **Speed Control Methods:** PWM (Pulse Width Modulation) (1 kHz to 10 kHz)
  0 to 10 VDC speed control.
  Mechanical: A potentiometer is available for speed control of the blower. The potentiometer can be preset for a specific speed. Access for speed adjustment located in motor housing.
- **Approximate Weight:** 4.8 Lbs. / 2.2 Kg
- **Regulatory Agency Certification:** Underwriters Laboratories Inc. UL507 Recognized under File E94403 and compliant under the CE Low Voltage Directive 2006/95/EC.
- **Design Features:** Designed to provide variable airflow for low NOx & CO emission in high efficiency gas fired combustion systems. Built with non-sparking materials. Blower housing assembly constructed of die cast aluminum. Impeller constructed from hardened aluminum. Rubber isolation mounts built into blower construction to dampen vibration within the motor. Two piece blower housing assembly sealed with O-ring gasket for combustion applications. Customer is responsible to check for any leakage once the blower is installed into the final application.
- **Miscellaneous:** Blower inlet, discharge, and all motor cooling inlet and discharge vents must not be obstructed. Motor ventilation air to be free of oils and other foreign particles, (i.e. breathing quality air). Blower is to be mounted so ventilation air cannot be re-circulated.
  POWER CONNECTION: Blower connector, AMP Universal MATE-N-LOK, part no. 1-350943-0.
  SPEED CONNECTION: Blower connector, Molex Mini-Fit Jr., part no. 39-30-3056.
  Mating harnesses available upon request.

Enclosure Specifications



Screw cover

Ratings:

Ingress Protection (EN 60529): 66/67

Electrical insulation: Totally insulated

Halogen free (DIN/VDE 0472, Part 815): yes

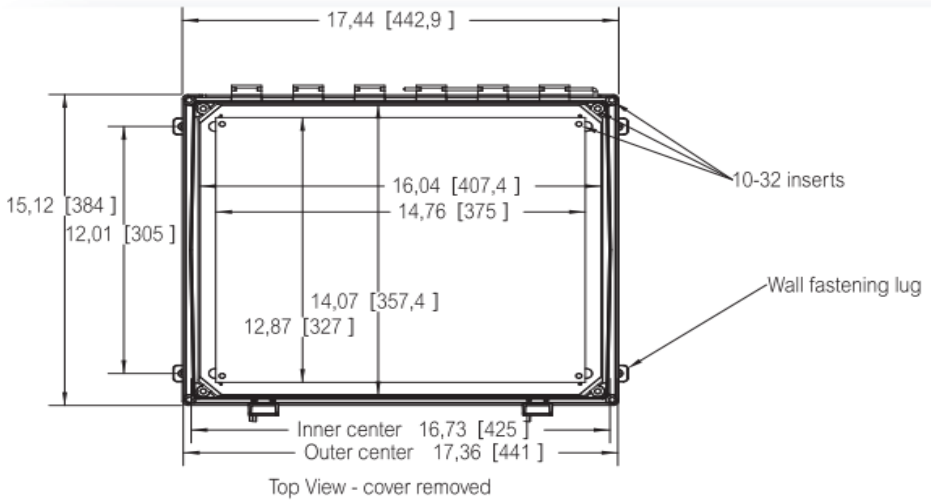
UV resistance: UL 508

Flammability Rating (UL 746 C 5): complies with UL 508

Glow Wire Test (IEC 695-2-1) °C: 960

NEMA Class: UL Type 4, 4X, 6, 6P, 12 and 13

Certificates: Underwriters Laboratories



Top View - cover removed

APPENDIX B
ANALYTICAL REPORTS

Technical Report

prepared for:

PVE, LLC.
48 Springside Avenue
Poughkeepsie NY, 12603
Attention: Conor Tarbell

Report Date: 06/15/2022
Client Project ID: 560532
York Project (SDG) No.: 22F0416

CT Cert. No. PH-0723 New Jersey Cert. No. CT005 and NY037 New York Cert. Nos. 10854 and 12058 PA Cert. No. 68-04440

120 RESEARCH DRIVE STRATFORD, CT 06615 ■ 132-02 89th AVENUE RICHMOND HILL, NY 11418
www.YORKLAB.com (203) 325-1371 FAX (203) 357-0166 ClientServices@yorklab.com

Report Date: 06/15/2022
Client Project ID: 560532
York Project (SDG) No.: 22F0416

PVE, LLC.
48 Springside Avenue
Poughkeepsie NY, 12603
Attention: Conor Tarbell

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on June 08, 2022 and listed below. The project was identified as your project: **560532**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
22F0416-01	EXHAUST A 20220607	Indoor Ambient Air	06/07/2022	06/08/2022
22F0416-02	EXHAUST B 20220607	Indoor Ambient Air	06/07/2022	06/08/2022
22F0416-03	EXHAUST D 20220607	Indoor Ambient Air	06/07/2022	06/08/2022
22F0416-04	EXHAUST OUT 20220607	Outdoor Ambient Ai	06/07/2022	06/08/2022

General Notes for York Project (SDG) No.: 22F0416

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058.

Approved By: Cassie L. Mosher

Date: 06/15/2022

Cassie L. Mosher
Laboratory Manager

Sample Information

Client Sample ID: EXHAUST A 20220607 **York Sample ID:** 22F0416-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:30 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m³	0.63	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
71-55-6	**1,1,1-Trichloroethane**	**0.86**		ug/m³	0.50	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	0.63	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m³	0.71	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	0.50	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-34-3	1,1-Dichloroethane	ND		ug/m³	0.37	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-35-4	1,1-Dichloroethylene	ND		ug/m³	0.091	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	0.68	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
95-63-6	**1,2,4-Trimethylbenzene**	**29**		ug/m³	0.45	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
106-93-4	1,2-Dibromoethane	ND		ug/m³	0.71	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	0.55	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
107-06-2	1,2-Dichloroethane	ND		ug/m³	0.37	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
78-87-5	1,2-Dichloropropane	ND		ug/m³	0.43	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	0.65	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
108-67-8	**1,3,5-Trimethylbenzene**	**6.9**		ug/m³	0.45	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
106-99-0	1,3-Butadiene	ND		ug/m³	0.61	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	0.55	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
142-28-9	* 1,3-Dichloropropane	ND		ug/m³	0.43	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	0.55	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
123-91-1	1,4-Dioxane	ND		ug/m³	0.67	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
78-93-3	**2-Butanone**	**3.1**		ug/m³	0.27	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
591-78-6	* 2-Hexanone	ND		ug/m³	0.76	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ

Sample Information

Client Sample ID: EXHAUST A 20220607 **York Sample ID:** 22F0416-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:30 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-05-1	3-Chloropropene	ND		ug/m³	1.4	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	0.38	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
67-64-1	**Acetone**	**15**		ug/m³	0.44	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
107-13-1	Acrylonitrile	ND		ug/m³	0.20	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
71-43-2	**Benzene**	**3.6**		ug/m³	0.29	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
100-44-7	Benzyl chloride	ND		ug/m³	0.48	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-27-4	Bromodichloromethane	ND		ug/m³	0.62	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-25-2	Bromoform	ND		ug/m³	0.95	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
74-83-9	Bromomethane	ND		ug/m³	0.36	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-15-0	Carbon disulfide	ND		ug/m³	0.29	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
56-23-5	**Carbon tetrachloride**	**0.41**		ug/m³	0.15	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
108-90-7	Chlorobenzene	ND		ug/m³	0.42	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-00-3	Chloroethane	ND		ug/m³	0.24	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
67-66-3	**Chloroform**	**5.1**		ug/m³	0.45	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
74-87-3	**Chloromethane**	**0.74**		ug/m³	0.19	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	0.091	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	0.42	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
110-82-7	**Cyclohexane**	**1.9**		ug/m³	0.32	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
124-48-1	Dibromochloromethane	ND		ug/m³	0.79	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
75-71-8	**Dichlorodifluoromethane**	**2.6**		ug/m³	0.46	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
141-78-6	* Ethyl acetate	ND		ug/m³	0.67	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
100-41-4	**Ethyl Benzene**	**43**		ug/m³	0.40	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ
87-68-3	Hexachlorobutadiene	ND		ug/m³	0.98	0.923	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 06:10	LLJ

Sample Information

Client Sample ID: EXHAUST A 20220607 **York Sample ID:** 22F0416-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:30 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
67-63-0	Isopropanol	ND		ug/m³	0.45	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
80-62-6	Methyl Methacrylate	ND		ug/m³	0.38	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	0.33	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
75-09-2	Methylene chloride	ND		ug/m³	0.64	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
142-82-5	**n-Heptane**	**6.2**		ug/m³	0.38	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
110-54-3	**n-Hexane**	**9.0**		ug/m³	0.33	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
95-47-6	**o-Xylene**	**15**		ug/m³	0.40	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
179601-23-1	**p- & m- Xylenes**	**40**		ug/m³	0.80	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
622-96-8	*** p-Ethyltoluene**	**29**		ug/m³	0.45	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
115-07-1	* Propylene	ND		ug/m³	0.16	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
100-42-5	Styrene	ND		ug/m³	0.39	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
127-18-4	Tetrachloroethylene	ND		ug/m³	0.63	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
109-99-9	*** Tetrahydrofuran**	**6.8**		ug/m³	0.54	0.923	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 06:10	LLJ
108-88-3	**Toluene**	**30**		ug/m³	0.35	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	0.37	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	0.42	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
79-01-6	**Trichloroethylene**	**8.5**		ug/m³	0.12	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
75-69-4	**Trichlorofluoromethane (Freon 11)**	**1.5**		ug/m³	0.52	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
108-05-4	Vinyl acetate	ND		ug/m³	0.32	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
593-60-2	Vinyl bromide	ND		ug/m³	0.40	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ
75-01-4	Vinyl Chloride	ND		ug/m³	0.12	0.923	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 06:10	LLJ

Sample Information

Client Sample ID: EXHAUST B 20220607 **York Sample ID:** 22F0416-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:32 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m³	0.63	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
71-55-6	**1,1,1-Trichloroethane**	**13**		ug/m³	0.50	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	0.63	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
76-13-1	**1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)**	**0.70**		ug/m³	0.70	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	0.50	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
75-34-3	1,1-Dichloroethane	ND		ug/m³	0.37	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
75-35-4	1,1-Dichloroethylene	ND		ug/m³	0.091	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	0.68	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
95-63-6	**1,2,4-Trimethylbenzene**	**34**		ug/m³	0.45	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
106-93-4	1,2-Dibromoethane	ND		ug/m³	0.70	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	0.55	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
107-06-2	1,2-Dichloroethane	ND		ug/m³	0.37	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
78-87-5	1,2-Dichloropropane	ND		ug/m³	0.42	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	0.64	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
108-67-8	**1,3,5-Trimethylbenzene**	**8.8**		ug/m³	0.45	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
106-99-0	1,3-Butadiene	ND		ug/m³	0.61	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	0.55	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
142-28-9	* 1,3-Dichloropropane	ND		ug/m³	0.42	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	0.55	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
123-91-1	1,4-Dioxane	ND		ug/m³	0.66	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
78-93-3	**2-Butanone**	**4.2**		ug/m³	0.27	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ
591-78-6	*** 2-Hexanone**	**0.94**		ug/m³	0.75	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
107-05-1	3-Chloropropene	ND		ug/m³	1.4	0.917	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 08:09	LLJ

Sample Information

Client Sample ID: EXHAUST B 20220607 **York Sample ID:** 22F0416-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:32 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	0.38	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
67-64-1	**Acetone**	**39**		ug/m³	0.44	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
107-13-1	Acrylonitrile	ND		ug/m³	0.20	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
71-43-2	**Benzene**	**6.2**		ug/m³	0.29	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
100-44-7	Benzyl chloride	ND		ug/m³	0.47	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-27-4	Bromodichloromethane	ND		ug/m³	0.61	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-25-2	Bromoform	ND		ug/m³	0.95	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
74-83-9	Bromomethane	ND		ug/m³	0.36	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-15-0	Carbon disulfide	ND		ug/m³	0.29	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
56-23-5	**Carbon tetrachloride**	**0.35**		ug/m³	0.14	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
108-90-7	Chlorobenzene	ND		ug/m³	0.42	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-00-3	Chloroethane	ND		ug/m³	0.24	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
67-66-3	**Chloroform**	**3.0**		ug/m³	0.45	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
74-87-3	**Chloromethane**	**0.80**		ug/m³	0.19	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	0.091	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	0.42	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
110-82-7	**Cyclohexane**	**3.1**		ug/m³	0.32	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
124-48-1	Dibromochloromethane	ND		ug/m³	0.78	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-71-8	**Dichlorodifluoromethane**	**2.8**		ug/m³	0.45	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
141-78-6	* Ethyl acetate	ND		ug/m³	0.66	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:			
100-41-4	**Ethyl Benzene**	**64**		ug/m³	0.40	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
87-68-3	Hexachlorobutadiene	ND		ug/m³	0.98	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
67-63-0	**Isopropanol**	**1.0**		ug/m³	0.45	0.917	EPA TO-15	06/11/2022 09:00	06/12/2022 08:09	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		

Sample Information

Client Sample ID: EXHAUST B 20220607 **York Sample ID:** 22F0416-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 11:32 am	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
80-62-6	Methyl Methacrylate	ND		ug/m³	0.38	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	0.33	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
75-09-2	**Methylene chloride**	**1.2**		ug/m³	0.64	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
142-82-5	**n-Heptane**	**10**		ug/m³	0.38	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
110-54-3	**n-Hexane**	**16**		ug/m³	0.32	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
95-47-6	**o-Xylene**	**22**		ug/m³	0.40	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
179601-23-1	**p- & m- Xylenes**	**58**		ug/m³	0.80	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
622-96-8	*** p-Ethyltoluene**	**37**		ug/m³	0.45	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
115-07-1	* Propylene	ND		ug/m³	0.16	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
100-42-5	Styrene	ND		ug/m³	0.39	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
127-18-4	**Tetrachloroethylene**	**8.8**		ug/m³	0.62	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
109-99-9	*** Tetrahydrofuran**	**4.2**		ug/m³	0.54	0.917	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 08:09	LLJ
108-88-3	**Toluene**	**49**		ug/m³	0.35	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	0.36	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	0.42	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
79-01-6	**Trichloroethylene**	**130**		ug/m³	0.12	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
75-69-4	**Trichlorofluoromethane (Freon 11)**	**1.5**		ug/m³	0.52	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
108-05-4	Vinyl acetate	ND		ug/m³	0.32	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
593-60-2	Vinyl bromide	ND		ug/m³	0.40	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ
75-01-4	Vinyl Chloride	ND		ug/m³	0.12	0.917	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 08:09	LLJ

Sample Information

Client Sample ID: EXHAUST D 20220607 **York Sample ID:** 22F0416-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 2:00 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m³	0.68	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
71-55-6	**1,1,1-Trichloroethane**	**25**		ug/m³	0.54	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	0.68	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m³	0.76	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	0.54	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
75-34-3	**1,1-Dichloroethane**	**9.1**		ug/m³	0.40	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
75-35-4	**1,1-Dichloroethylene**	**0.16**		ug/m³	0.099	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	0.74	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
95-63-6	**1,2,4-Trimethylbenzene**	**29**		ug/m³	0.49	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
106-93-4	1,2-Dibromoethane	ND		ug/m³	0.76	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	0.60	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
107-06-2	1,2-Dichloroethane	ND		ug/m³	0.40	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
78-87-5	1,2-Dichloropropane	ND		ug/m³	0.46	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	0.69	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
108-67-8	**1,3,5-Trimethylbenzene**	**7.2**		ug/m³	0.49	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
106-99-0	1,3-Butadiene	ND		ug/m³	0.66	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	0.60	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
142-28-9	* 1,3-Dichloropropane	ND		ug/m³	0.46	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	0.60	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
123-91-1	1,4-Dioxane	ND		ug/m³	0.72	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
78-93-3	**2-Butanone**	**3.4**		ug/m³	0.29	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ
591-78-6	* 2-Hexanone	ND		ug/m³	0.81	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
107-05-1	3-Chloropropene	ND		ug/m³	1.6	0.994	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 09:11	LLJ

Sample Information

Client Sample ID: EXHAUST D 20220607 **York Sample ID:** 22F0416-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 2:00 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	0.41	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
67-64-1	**Acetone**	**37**		ug/m³	0.47	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
107-13-1	Acrylonitrile	ND		ug/m³	0.22	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
71-43-2	**Benzene**	**4.5**		ug/m³	0.32	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
100-44-7	Benzyl chloride	ND		ug/m³	0.51	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
75-27-4	Bromodichloromethane	ND		ug/m³	0.67	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
75-25-2	Bromoform	ND		ug/m³	1.0	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
74-83-9	Bromomethane	ND		ug/m³	0.39	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
75-15-0	Carbon disulfide	ND		ug/m³	0.31	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
56-23-5	**Carbon tetrachloride**	**0.38**		ug/m³	0.16	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
108-90-7	Chlorobenzene	ND		ug/m³	0.46	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
75-00-3	Chloroethane	ND		ug/m³	0.26	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
67-66-3	**Chloroform**	**1.5**		ug/m³	0.49	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
74-87-3	**Chloromethane**	**0.99**		ug/m³	0.21	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
156-59-2	**cis-1,2-Dichloroethylene**	**230**		ug/m³	0.18	1.866	EPA TO-15	06/11/2022 09:00	06/12/2022 11:13	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	0.45	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
110-82-7	**Cyclohexane**	**2.1**		ug/m³	0.34	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
124-48-1	Dibromochloromethane	ND		ug/m³	0.85	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
75-71-8	**Dichlorodifluoromethane**	**2.9**		ug/m³	0.49	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
141-78-6	* Ethyl acetate	ND		ug/m³	0.72	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications:			
100-41-4	**Ethyl Benzene**	**46**		ug/m³	0.43	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
87-68-3	Hexachlorobutadiene	ND		ug/m³	1.1	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			
67-63-0	Isopropanol	ND		ug/m³	0.49	0.994	EPA TO-15	06/11/2022 09:00	06/12/2022 09:11	LLJ
							Certifications: NELAC-NY12058,NJDEP-Queens			

Sample Information

Client Sample ID: EXHAUST D 20220607 **York Sample ID:** 22F0416-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Indoor Ambient Air	June 7, 2022 2:00 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
80-62-6	Methyl Methacrylate	ND		ug/m³	0.41	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	0.36	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
75-09-2	**Methylene chloride**	**0.86**		ug/m³	0.69	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
142-82-5	**n-Heptane**	**6.9**		ug/m³	0.41	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
110-54-3	**n-Hexane**	**11**		ug/m³	0.35	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
95-47-6	**o-Xylene**	**16**		ug/m³	0.43	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
179601-23-1	**p- & m- Xylenes**	**42**		ug/m³	0.86	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
622-96-8	*** p-Ethyltoluene**	**29**		ug/m³	0.49	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
115-07-1	* Propylene	ND		ug/m³	0.17	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
100-42-5	Styrene	ND		ug/m³	0.42	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
127-18-4	**Tetrachloroethylene**	**230**		ug/m³	0.67	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
109-99-9	*** Tetrahydrofuran**	**2.8**		ug/m³	0.59	0.994	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 09:11	LLJ
108-88-3	**Toluene**	**33**		ug/m³	0.37	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
156-60-5	**trans-1,2-Dichloroethylene**	**6.3**		ug/m³	0.39	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	0.45	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
79-01-6	**Trichloroethylene**	**320**		ug/m³	0.25	1.866	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 11:13	LLJ
75-69-4	**Trichlorofluoromethane (Freon 11)**	**1.5**		ug/m³	0.56	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
108-05-4	Vinyl acetate	ND		ug/m³	0.35	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
593-60-2	Vinyl bromide	ND		ug/m³	0.43	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ
75-01-4	Vinyl Chloride	ND		ug/m³	0.13	0.994	EPA TO-15 Certifications:	06/11/2022 09:00 NELAC-NY12058,NJDEP-Queens	06/12/2022 09:11	LLJ

Sample Information

Client Sample ID: EXHAUST OUT 20220607 **York Sample ID:** 22F0416-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Outdoor Ambient Air	June 7, 2022 2:18 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m³	0.51	0.746	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 10:21	LLJ
71-55-6	**1,1,1-Trichloroethane**	**58**		ug/m³	0.41	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	0.51	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
76-13-1	**1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)**	**0.74**		ug/m³	0.57	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	0.41	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-34-3	1,1-Dichloroethane	ND		ug/m³	0.30	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-35-4	1,1-Dichloroethylene	ND		ug/m³	0.074	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	0.55	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
95-63-6	**1,2,4-Trimethylbenzene**	**57**		ug/m³	0.37	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
106-93-4	1,2-Dibromoethane	ND		ug/m³	0.57	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	0.45	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
107-06-2	1,2-Dichloroethane	ND		ug/m³	0.30	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
78-87-5	1,2-Dichloropropane	ND		ug/m³	0.34	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	0.52	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
108-67-8	**1,3,5-Trimethylbenzene**	**15**		ug/m³	0.37	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
106-99-0	1,3-Butadiene	ND		ug/m³	0.50	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	0.45	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
142-28-9	* 1,3-Dichloropropane	ND		ug/m³	0.34	0.746	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 10:21	LLJ
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	0.45	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
123-91-1	1,4-Dioxane	ND		ug/m³	0.54	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
78-93-3	**2-Butanone**	**19**		ug/m³	0.22	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
591-78-6	*** 2-Hexanone**	**4.0**		ug/m³	0.61	0.746	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 10:21	LLJ
107-05-1	3-Chloropropene	ND		ug/m³	1.2	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ

Sample Information

Client Sample ID: EXHAUST OUT 20220607 **York Sample ID:** 22F0416-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Outdoor Ambient Air	June 7, 2022 2:18 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	0.31	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
67-64-1	**Acetone**	**560**		ug/m³	13	28	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 12:07	LLJ
107-13-1	Acrylonitrile	ND		ug/m³	0.16	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
71-43-2	**Benzene**	**11**		ug/m³	0.24	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
100-44-7	Benzyl chloride	ND		ug/m³	0.39	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-27-4	Bromodichloromethane	ND		ug/m³	0.50	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-25-2	Bromoform	ND		ug/m³	0.77	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
74-83-9	Bromomethane	ND		ug/m³	0.29	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-15-0	**Carbon disulfide**	**0.23**		ug/m³	0.23	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
56-23-5	**Carbon tetrachloride**	**0.33**		ug/m³	0.12	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
108-90-7	Chlorobenzene	ND		ug/m³	0.34	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-00-3	Chloroethane	ND		ug/m³	0.20	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
67-66-3	**Chloroform**	**5.1**		ug/m³	0.36	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
74-87-3	**Chloromethane**	**0.72**		ug/m³	0.15	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
156-59-2	**cis-1,2-Dichloroethylene**	**2.6**		ug/m³	0.074	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	0.34	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
110-82-7	**Cyclohexane**	**6.4**		ug/m³	0.26	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
124-48-1	Dibromochloromethane	ND		ug/m³	0.64	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
75-71-8	**Dichlorodifluoromethane**	**2.4**		ug/m³	0.37	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
141-78-6	* Ethyl acetate	ND		ug/m³	0.54	0.746	EPA TO-15 Certifications:	06/11/2022 09:00	06/12/2022 10:21	LLJ
100-41-4	**Ethyl Benzene**	**99**		ug/m³	0.32	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
87-68-3	Hexachlorobutadiene	ND		ug/m³	0.80	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ
67-63-0	**Isopropanol**	**30**		ug/m³	0.37	0.746	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-Queens	06/11/2022 09:00	06/12/2022 10:21	LLJ

Sample Information

Client Sample ID: EXHAUST OUT 20220607 **York Sample ID:** 22F0416-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
22F0416	560532	Outdoor Ambient Air	June 7, 2022 2:18 pm	06/08/2022

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes: TO-VAC

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
80-62-6	Methyl Methacrylate	ND		ug/m³	0.31	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	0.27	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-09-2	**Methylene chloride**	**0.62**		ug/m³	0.52	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
142-82-5	**n-Heptane**	**19**		ug/m³	0.31	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
110-54-3	**n-Hexane**	**30**		ug/m³	0.26	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
95-47-6	**o-Xylene**	**37**		ug/m³	0.32	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
179601-23-1	**p- & m- Xylenes**	**92**		ug/m³	0.65	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
622-96-8	*** p-Ethyltoluene**	**62**		ug/m³	0.37	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:			
115-07-1	*** Propylene**	**2.0**		ug/m³	0.13	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:			
100-42-5	Styrene	ND		ug/m³	0.32	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
127-18-4	**Tetrachloroethylene**	**87**		ug/m³	0.51	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
109-99-9	*** Tetrahydrofuran**	**7.4**		ug/m³	0.44	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:			
108-88-3	**Toluene**	**76**		ug/m³	0.28	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
156-60-5	**trans-1,2-Dichloroethylene**	**3.0**		ug/m³	0.30	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	0.34	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
79-01-6	**Trichloroethylene**	**2800**		ug/m³	3.8	28	EPA TO-15	06/11/2022 09:00	06/12/2022 12:07	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-69-4	**Trichlorofluoromethane (Freon 11)**	**1.5**		ug/m³	0.42	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
108-05-4	Vinyl acetate	ND		ug/m³	0.26	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
593-60-2	Vinyl bromide	ND		ug/m³	0.33	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		
75-01-4	Vinyl Chloride	ND		ug/m³	0.095	0.746	EPA TO-15	06/11/2022 09:00	06/12/2022 10:21	LLJ
							Certifications:	NELAC-NY12058,NJDEP-Queens		

Analytical Batch Summary

Batch ID: BF20695 **Preparation Method:** EPA TO15 PREP **Prepared By:** LLJ

YORK Sample ID	Client Sample ID	Preparation Date
22F0416-01	EXHAUST A 20220607	06/11/22
22F0416-02	EXHAUST B 20220607	06/11/22
22F0416-03	EXHAUST D 20220607	06/11/22
22F0416-03RE1	EXHAUST D 20220607	06/11/22
22F0416-04	EXHAUST OUT 20220607	06/11/22
22F0416-04RE1	EXHAUST OUT 20220607	06/11/22
BF20695-BLK1	Blank	06/11/22
BF20695-BS1	LCS	06/11/22

Volatile Organic Compounds in Air by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BF20695 - EPA TO15 PREP											
Blank (BF20695-BLK1)											
Prepared: 06/11/2022 Analyzed: 06/12/2022											
1,1,1,2-Tetrachloroethane	ND	0.69	ug/m³								
1,1,1-Trichloroethane	ND	0.55	"								
1,1,2,2-Tetrachloroethane	ND	0.69	"								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.77	"								
1,1,2-Trichloroethane	ND	0.55	"								
1,1-Dichloroethane	ND	0.40	"								
1,1-Dichloroethylene	ND	0.099	"								
1,2,4-Trichlorobenzene	ND	0.74	"								
1,2,4-Trimethylbenzene	ND	0.49	"								
1,2-Dibromoethane	ND	0.77	"								
1,2-Dichlorobenzene	ND	0.60	"								
1,2-Dichloroethane	ND	0.40	"								
1,2-Dichloropropane	ND	0.46	"								
1,2-Dichlorotetrafluoroethane	ND	0.70	"								
1,3,5-Trimethylbenzene	ND	0.49	"								
1,3-Butadiene	ND	0.66	"								
1,3-Dichlorobenzene	ND	0.60	"								
1,3-Dichloropropane	ND	0.46	"								
1,4-Dichlorobenzene	ND	0.60	"								
1,4-Dioxane	ND	0.72	"								
2-Butanone	ND	0.29	"								
2-Hexanone	ND	0.82	"								
3-Chloropropene	ND	1.6	"								
4-Methyl-2-pentanone	ND	0.41	"								
Acetone	ND	0.48	"								
Acrylonitrile	ND	0.22	"								
Benzene	ND	0.32	"								
Benzyl chloride	ND	0.52	"								
Bromodichloromethane	ND	0.67	"								
Bromoform	ND	1.0	"								
Bromomethane	ND	0.39	"								
Carbon disulfide	ND	0.31	"								
Carbon tetrachloride	ND	0.16	"								
Chlorobenzene	ND	0.46	"								
Chloroethane	ND	0.26	"								
Chloroform	ND	0.49	"								
Chloromethane	ND	0.21	"								
cis-1,2-Dichloroethylene	ND	0.099	"								
cis-1,3-Dichloropropylene	ND	0.45	"								
Cyclohexane	ND	0.34	"								
Dibromochloromethane	ND	0.85	"								
Dichlorodifluoromethane	ND	0.49	"								
Ethyl acetate	ND	0.72	"								
Ethyl Benzene	ND	0.43	"								
Hexachlorobutadiene	ND	1.1	"								
Isopropanol	ND	0.49	"								
Methyl Methacrylate	ND	0.41	"								
Methyl tert-butyl ether (MTBE)	ND	0.36	"								
Methylene chloride	ND	0.69	"								

Volatile Organic Compounds in Air by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BF20695 - EPA TO15 PREP											
Blank (BF20695-BLK1)											Prepared: 06/11/2022 Analyzed: 06/12/2022
n-Heptane	ND	0.41	ug/m³								
n-Hexane	ND	0.35	"								
o-Xylene	ND	0.43	"								
p- & m- Xylenes	ND	0.87	"								
p-Ethyltoluene	ND	0.49	"								
Propylene	ND	0.17	"								
Styrene	ND	0.43	"								
Tetrachloroethylene	ND	0.68	"								
Tetrahydrofuran	ND	0.59	"								
Toluene	ND	0.38	"								
trans-1,2-Dichloroethylene	ND	0.40	"								
trans-1,3-Dichloropropylene	ND	0.45	"								
Trichloroethylene	ND	0.13	"								
Trichlorofluoromethane (Freon 11)	ND	0.56	"								
Vinyl acetate	ND	0.35	"								
Vinyl bromide	ND	0.44	"								
Vinyl Chloride	ND	0.13	"								
LCS (BF20695-BS1)											Prepared: 06/11/2022 Analyzed: 06/12/2022
1,1,1,2-Tetrachloroethane	10.3		ppbv	10.0		103	70-130				
1,1,1-Trichloroethane	10.6		"	10.0		106	70-130				
1,1,2,2-Tetrachloroethane	9.89		"	10.0		98.9	70-130				
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	10.7		"	10.0		107	70-130				
1,1,2-Trichloroethane	10.4		"	10.0		104	70-130				
1,1-Dichloroethane	9.87		"	10.0		98.7	70-130				
1,1-Dichloroethylene	9.36		"	10.0		93.6	70-130				
1,2,4-Trichlorobenzene	5.56		"	10.0		55.6	70-130	Low Bias			
1,2,4-Trimethylbenzene	9.51		"	10.0		95.1	70-130				
1,2-Dibromoethane	10.3		"	10.0		103	70-130				
1,2-Dichlorobenzene	9.64		"	10.0		96.4	70-130				
1,2-Dichloroethane	9.88		"	10.0		98.8	70-130				
1,2-Dichloropropane	9.77		"	10.0		97.7	70-130				
1,2-Dichlorotetrafluoroethane	11.6		"	10.0		116	70-130				
1,3,5-Trimethylbenzene	9.59		"	10.0		95.9	70-130				
1,3-Butadiene	7.50		"	10.0		75.0	70-130				
1,3-Dichlorobenzene	9.49		"	10.0		94.9	70-130				
1,3-Dichloropropane	9.94		"	10.0		99.4	70-130				
1,4-Dichlorobenzene	9.21		"	10.0		92.1	70-130				
1,4-Dioxane	8.59		"	10.0		85.9	70-130				
2-Butanone	8.97		"	10.0		89.7	70-130				
2-Hexanone	7.04		"	10.0		70.4	70-130				
3-Chloropropene	9.41		"	10.0		94.1	70-130				
4-Methyl-2-pentanone	7.47		"	10.0		74.7	70-130				
Acetone	8.11		"	10.0		81.1	70-130				
Acrylonitrile	9.22		"	10.0		92.2	70-130				
Benzene	9.71		"	10.0		97.1	70-130				
Benzyl chloride	9.76		"	10.0		97.6	70-130				
Bromodichloromethane	10.2		"	10.0		102	70-130				
Bromoform	10.9		"	10.0		109	70-130				
Bromomethane	10.8		"	10.0		108	70-130				
Carbon disulfide	9.87		"	10.0		98.7	70-130				

Volatile Organic Compounds in Air by GC/MS - Quality Control Data

York Analytical Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BF20695 - EPA TO15 PREP											
LCS (BF20695-BS1)									Prepared: 06/11/2022 Analyzed: 06/12/2022		
Carbon tetrachloride	9.75		ppbv	10.0		97.5	70-130				
Chlorobenzene	9.75		"	10.0		97.5	70-130				
Chloroethane	10.3		"	10.0		103	70-130				
Chloroform	10.3		"	10.0		103	70-130				
Chloromethane	7.44		"	10.0		74.4	70-130				
cis-1,2-Dichloroethylene	9.42		"	10.0		94.2	70-130				
cis-1,3-Dichloropropylene	10.3		"	10.0		103	70-130				
Cyclohexane	9.90		"	10.0		99.0	70-130				
Dibromochloromethane	11.0		"	10.0		110	70-130				
Dichlorodifluoromethane	10.8		"	10.0		108	70-130				
Ethyl acetate	9.59		"	10.0		95.9	70-130				
Ethyl Benzene	9.89		"	10.0		98.9	70-130				
Hexachlorobutadiene	7.02		"	10.0		70.2	70-130				
Isopropanol	9.54		"	10.0		95.4	70-130				
Methyl Methacrylate	9.28		"	10.0		92.8	70-130				
Methyl tert-butyl ether (MTBE)	10.1		"	10.0		101	70-130				
Methylene chloride	8.99		"	10.0		89.9	70-130				
n-Heptane	9.44		"	10.0		94.4	70-130				
n-Hexane	9.92		"	10.0		99.2	70-130				
o-Xylene	9.94		"	10.0		99.4	70-130				
p- & m- Xylenes	19.8		"	20.0		99.2	70-130				
p-Ethyltoluene	9.90		"	10.0		99.0	70-130				
Propylene	9.44		"	10.0		94.4	70-130				
Styrene	9.56		"	10.0		95.6	70-130				
Tetrachloroethylene	9.19		"	10.0		91.9	70-130				
Tetrahydrofuran	9.34		"	10.0		93.4	70-130				
Toluene	9.56		"	10.0		95.6	70-130				
trans-1,2-Dichloroethylene	9.84		"	10.0		98.4	70-130				
trans-1,3-Dichloropropylene	10.4		"	10.0		104	70-130				
Trichloroethylene	9.34		"	10.0		93.4	70-130				
Trichlorofluoromethane (Freon 11)	10.6		"	10.0		106	70-130				
Vinyl acetate	8.84		"	10.0		88.4	70-130				
Vinyl bromide	11.0		"	10.0		110	70-130				
Vinyl Chloride	7.62		"	10.0		76.2	70-130				

Sample and Data Qualifiers Relating to This Work Order

TO-VAC The final vacuum in the canister was less than -2 inches Hg vacuum. The time integrated sampling may be affected and not reflect proper sampling over the time period. The data user should take note.

TO-LCS-L The result reported for this compound may be biased low due to its behavior in the analysis batch LCS where it recovered less 70% of the expected value.

Definitions and Other Explanations

* Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.

ND NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)

RL REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.

LOQ LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.

LOD LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.

MDL METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.

Reported to This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.

NR Not reported

RPD Relative Percent Difference

Wet The data has been reported on an as-received (wet weight) basis

Low Bias Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

High Bias High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

Non-Dir. Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.

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Field Chain-of-Custody Record - AIR

NOTE: YORK's Standard Terms & Conditions are listed on the back side of this document. This document serves as your written authorization for YORK to proceed with the analyses requested below. Your signature binds you to YORK's Standard Terms & Conditions.

YORK Project No. 22F0416

YOUR Information	Report To:	Invoice To:
Company: PVE ENGINEERING	Company: SAME	Company: SAME
Address: 48 SPRINGSIDE AVE. POUGHKEEPSIE, N.Y. 12603	Address:	Address:
Phone.: 845-454-2544	Phone.:	Phone.:
Contact: A. SPADAVECCHIA	Contact: CONOR TARBELL	Contact: TARA ALVARADO
E-mail: ASPADAVECCHIA@PVE-LLC.COM	E-mail: CTARBELL@PVE-LLC.COM	E-mail: TALVARADO@PVE-LLC.COM

YOUR Project Number: 560532

YOUR Project Name: 560532

YOUR PO#: 560532-003 PILOT TEST

Turn-Around Time

RUSH - Next Day	
RUSH - Two Day	
RUSH - Three Day	
RUSH - Four Day	
Standard (5-7 Day)	X

Please print clearly and legibly. All information must be complete. Samples will not be logged in and the turn-around-time clock will not begin until any questions by YORK are resolved.

ANTHONY J. SPADAVECCHIA

Samples Collected by: (print your name above and sign below)

Air Matrix Codes
- AI - Indoor Ambient Air
- AO - Outdoor Amb. Air
- AE - Vapor Extraction Well/ Process Gas/Effluent
- AS - Soil Vapor/Sub-Slab

Samples From
- New York: X
- New Jersey
- Connecticut
- Pennsylvania
- Other

Report / EDD Type (circle selections)
- (Summary Report)
- QA Report
- NY ASP A Package
- (NY ASP B Package)
- Other:
- CT RCP
- CT RCP DQA/DUE
- NJDEP Reduced Deliv.
- NJDKQP
- Standard Excel EDD
- EQuIS (Standard)
- (NYSDEC EQuIS)
- NJDEP SRP HazSite

YORK Reg. Comp.
Compared to the following Regulation(s): (please fill in)

Certified Canisters: Batch ___ Individual ___

Please enter the following REQUIRED Field Data

Reporting Units: ug/m³ ___ ppbv ___ ppmv ___

Sample Identification	Date/Time Sampled	Air Matrix	Canister Vacuum Before Sampling (in Hg)	Canister Vacuum After Sampling (in Hg)	Canister ID	Flow Cont. ID	Analysis Requested
EXHAUST A 20220607	6-7-22 / 1130	AI	-30"	-2"	23799	3351	TO-15
EXHAUST B 20220607	/ 1132	AI	-30+"	-4"	23996	6868	
EXHAUST D 20220607	/ 1400	AI	-30"	-3"	37782	13568	
EXHAUST OUT 20220607	/ 1418	AO	-30"	-4"	16975	7079	

Comments:

Detection Limits Required
≤ 1 ug/m³ ___ NYSDEC V1 Limits ___
Routine Survey ___ Other ___

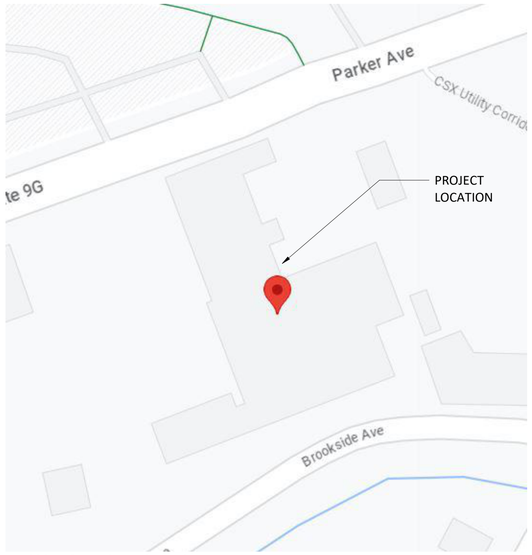
Sampling Media
- 6 Liter Canister
- Tedlar Bag

Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time	Samples Relinquished by / Company	Date/Time
PVE	06-08-22 / 1230		6/8/22 1230		
Samples Received by / Company	Date/Time	Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time
Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time	Samples Received in LAB by	Date/Time
				Alexa M Schenk	6/9/22 12:15

APPENDIX C
MITIGATION SYSTEM DESIGN

58 PARKER AVENUE

SUB-SLAB SOIL EXHAUST INSTALLATION



SCOPE OF MECHANICAL WORK

1. INSTALLATION OF A SUB-SLAB SOIL EXHAUST SYSTEM, INCLUDING ALL PENETRATION DUCTWORK , FANS, ACCESSORIES AND SUPPORTS FROM BELOW GRADE SLAB TO ROOF TO MEET REQUIREMENTS OF SECTION 512 OF 2020 NYS MC.

2. NO CHANGE IN EGRESS, USE, OR OCCUPANCY

3. THIS APPLICATION SHALL ONLY PERTAIN TO THE SUB-SLAB SOIL EXHAUST SYSTEM. ALL OTHER MECHANICAL SCOPES ASSOCIATED WITH NEW BUILDING CONSTRUCTION FILED UNDER SEPERATE FILING.

MECHANICAL SHEET LIST		
SHEET NUMBER	SHEET NAME	SCALE
T-100.00	TITLE SHEET	NONE
M-100.00	SUB SLAB DEPRESSURIZATION PLAN	1/16" = 1'-0"
M-200.00	SSDS RISER DIAGRAMS	NONE
M-300.00	MECHANICAL DETAILS	NONE
M-400.00	MECHANICAL NOTES -1	NONE
M-401.00	MECHANICAL NOTES SHEET-2	NONE

GENERAL STATEMENT:
THESE PLANS ARE APPROVED ONLY FOR THE INDICATED WORK ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR CONSIDERED EITHER APPROVED OR IN ACCORDANCE WITH APPLICABLE CODE.

REFERENCES AND CODES:
1. 2020 NEW YORK STATE MECHANICAL CODE
2. 2020 NEW YORK STATE ENERGY CONSERVATION CODE
3. COMPLY WITH CODES AND STANDARDS OF NATIONAL, STATE, & LOCAL AUTHORITIES.

DELIVERY, STORAGE, SEQUENCING:
1. COORDINATE WITH CONSTRUCTION SCHEDULE.
2. DELIVER ITEMS INTACT, ASSEMBLED OR PACKAGED BY MANUFACTURER.
3. STORE IN DESIGNATED LOCATION, PROTECTED FROM THE ELEMENTS AND CONSTRUCTION ACTIVITIES.
4. STORE EQUIPMENT INSIDE BUILDING UPON DELIVERY.
5. REMOVE DAMAGED MATERIALS OR EQUIPMENT FROM SITE AND REPLACE WITH NEW UNDAMAGED MATERIAL OF SAME QUALITY AT NO CHANGE IN CONTRACT PRICE.
6. AVOID EXCESSIVE HANDLING OF FINISHED ITEMS.
7. COORDINATE WITH OTHER TRADES WHERE CRITICAL OR THE NATURE OF THE MATERIAL OR IT'S APPLICATION IS SUCH THAT THE WORK CANNOT BE ACCOMPLISHED WITHOUT DAMAGE TO THE WORK OF OTHER TRADES.
8. COMPLY WITH CONSTRUCTION SCHEDULE.

2020 NYS BUILDING DEPARTMENT MECHANICAL & COMMISSIONING NOTES:
1. ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2020 NEW YORK STATE ENERGY CONSERVATION CODE, 2020 NEW YORK STATE CONSTRUCTION CODES AND ALL AMENDMENTS TO DATE.
2. CONTRACTOR SHALL OBTAIN SERVICE EQUIPMENT PERMIT FOR MECHANICAL WORK PRIOR TO COMMENCING CONSTRUCTION.
3. MECHANICAL SYSTEMS CAPACITIES, COMPONENT MATERIALS AND INSTALLATION SHALL COMPLY WITH NYS CODE REFERENCE INCLUDING BUT NOT LIMITED TO:
   - 3.2 EXHAUST SYSTEM (MC 501.1 – MC 515.1)
   - 3.3 DUCT SYSTEMS (MC 601.1 – MC 609.1)
4. OWNER SHALL BE RESPONSIBLE FOR INSPECTIONS RELATED FEES FOR MECHANICAL WORK SUBJECTED TO SPECIAL INSPECTION AS APPLICABLE:
5. DUCT SUPPORTS SHALL BE IN ACCORDANCE WITH MC 603, SMACNA STANDARDS AND ASTMD 1785
6. SYSTEM COMMISSIONING IS NOT REQUIRED FOR THIS PROJECT AS PER THE 2020 NYSECC.

MECHANICAL SYMBOL LEGEND	
	SLOTTED SCH 40 PVC DUCTWORK
	SCH 40 PVC DUCTWORK

MECHANICAL ABBREVIATIONS	
VD	VOLUME DAMPER
GA.	GAUGE
GALV.	GALVANIZED
HR.	HOUR
(E)	EXISTING
ACOUS.	ACOUSTICAL
I.D.	INSIDE DIAMETER
TYP.	TYPICAL
GYP.	GYPSUM
SPEC.	SPECIFICATION
A.F.F.	ABOVE FINISHED FLOOR
ASB.	ASBESTOS
MISC.	MISCELLANEOUS
WT.	WEIGHT
CD	CONDENSATE DRAIN
FD	FIRE DAMPER
FSD	FIRE SMOKE DAMPER
SD	SMOKE DAMPER
DN	DOWN
NTS	NOT TO SCALE
VFD	VARIABLE FREQUENCY DRIVES
FT	FEET
IN	INCH
NC	NOISE CRITERIA

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE:

STATE OF NEW YORK
DAVID EDUARDO SIVIN
095217
LICENSED PROFESSIONAL ENGINEER

PREPARED BY:

PVE
25 W. 39TH STREET, 12TH FLOOR
NEW YORK, NY 10018
PHONE: (646)-602-4999
E-MAIL: STRUCTURES@PVE-LLC.COM
WEB: PVE-LLC.COM

PREPARED FOR:

NORTHSIDE JUNCTION LLC, 1 CIVIC CENTER PLAZA #200
POUGHKEEPSIE, NEW YORK

DATE ISSUED: 4/26/2023

PLAN REVISIONS

No.	DATE	DESCRIPTION

SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

DRAWING NAME:
TITLE SHEET

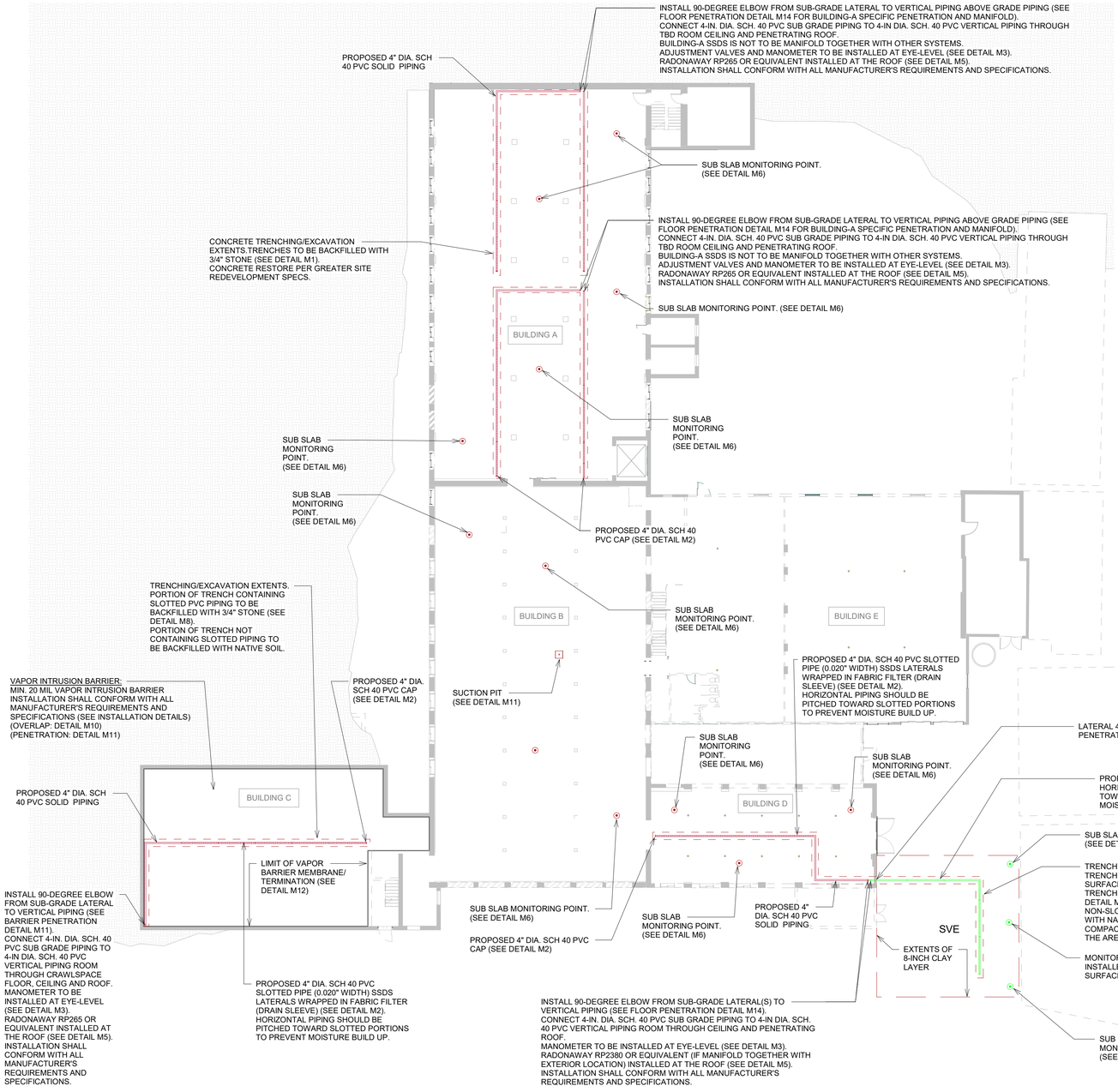
PROJECT NO:

DRAWING NO:
T-100.00

GENERAL NOTES:
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE APPLICABLE BUILDING CODES.
2. THE LOCATION, TYPE, LINE, SIZE, DEPTH, ETC. OF ALL EXISTING AND PROPOSED NEW UTILITIES, ARE APPROXIMATE.
3. ALL SSDS VENT LATERAL LOCATIONS SHALL BE COORDINATED WITH THE UTILITIES ASSOCIATED WITH THE PLUMBING AND ELECTRICAL PLANS, AS APPLICABLE.
4. ALL SSDS EQUIPMENT SHALL BE OPERATED IN ACCORDANCE WITH MANUFACTURER'S OPERATIONS AND MAINTENANCE PLAN.
5. THE SYSTEM IS BEING INSTALLED AS PART OF A SUB-SLAB SOIL EXHAUST SYSTEM AS PER THE NYS MECHANICAL CODE (SECTION 512)
6. THIS SYSTEM IS NOT INTENDED AS A HAZARDOUS EXHAUST SYSTEM AS PER NYS MECHANICAL CODE (SECTION 510).

INSTALLATION NOTES:
1. 3/4-INCH CLEAN STONE BASE SURROUNDING SLOTTED PIPING SHALL BE COMPACTED.
2. CHANGES IN LOCATION, DEPTH, OR PLACEMENT OF SSDS PIPING DUE TO UTILITY OR OTHER CONFLICTS SHALL BE COORDINATED AND APPROVED BY THE DESIGN ENGINEER.
3. DIMENSIONS PROVIDED ARE TO THE CENTER OF THE SYSTEM PIPING.

ELECTRICAL NOTES:
1. ALL WIRING AND ELECTRICAL SYSTEMS TO BE INSTALLED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
2. ALL ELECTRICAL WORK SHALL BE COMPLETED BY A LICENSED ELECTRICIAN, HIRED BY THE CONTRACTOR AND/OR OWNER. WIRING JUNCTION BOX SHALL BE MAINTAINED BY OWNER.



1 SUB-CELLAR FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE: 1/16" = 1'-0"

N

STATE OF NEW YORK · DAVID EDUARDO SIVIN · 095217 · LICENSED PROFESSIONAL ENGINEER

PREPARED BY:

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25 W. 39TH STREET, 12TH FLOOR
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PREPARED FOR:

NORTHSIDE JUNCTION LLC, 1 CIVIC CENTER PLAZA #200
POUGHKEEPSIE, NEW YORK

DATE ISSUED: 4/26/2023

PLAN REVISIONS

No.	DATE	DESCRIPTION

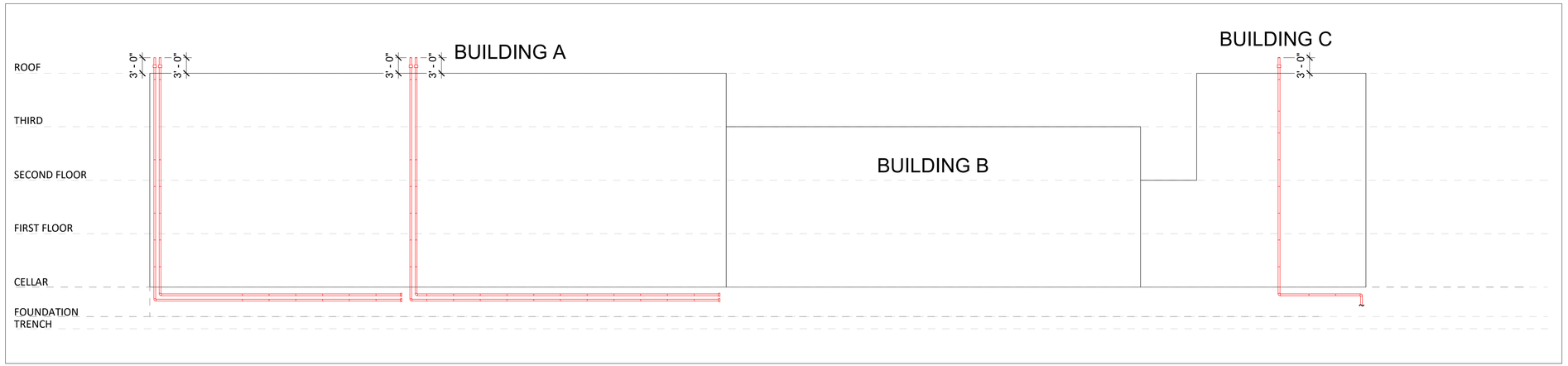
SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

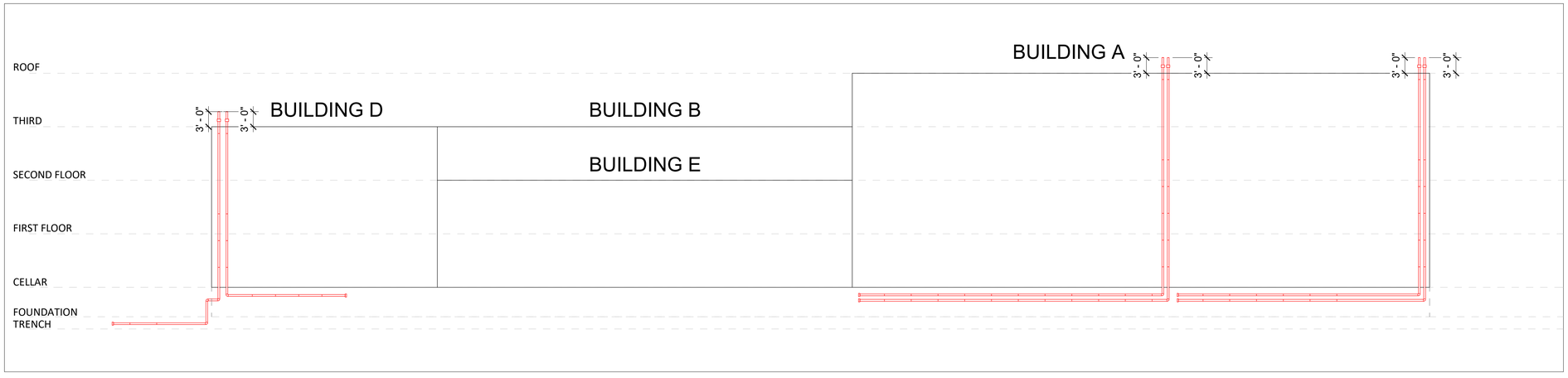
DRAWING NAME:
SUB SLAB DEPRESSURIZATION PLAN

PROJECT NO:

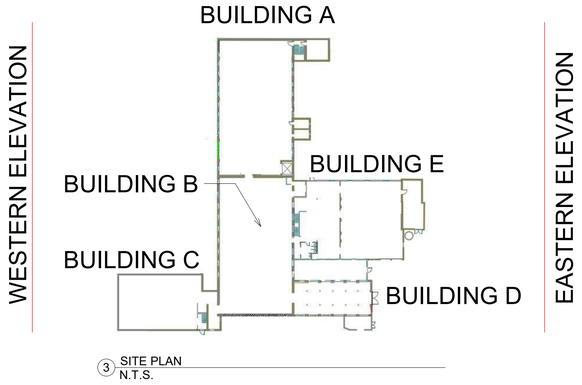
DRAWING NO: **M-100.00**



② WESTERN ELEVATION
N.T.S.



① EASTERN ELEVATION
N.T.S.



③ SITE PLAN
N.T.S.

NOTES:
ROOF TERMINATION SHALL BE A MINIMUM 10 FEET FROM WINDOWS OR ACCESSIBLE OUTDOOR AREAS, AND10 FEET FROM AIR INTAKES SERVING INDOOR VENTILATION SYSTEM AS PER NYS MECHANICAL CODE SECTION 501.3.1.

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE:
As indicated

STATE OF NEW YORK
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PLAN REVISIONS

No.	DATE	DESCRIPTION

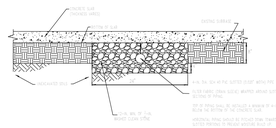
SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

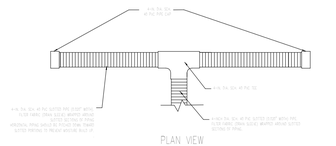
DRAWING NAME:
SSDS RISER DIAGRAMS

PROJECT NO:

DRAWING NO:
M-200.00



M1 TYPICAL INTERIOR CONC. TRENCH DETAIL
NTS



M2 TYPICAL SSDS LATERAL PIPE SYSTEM DETAIL
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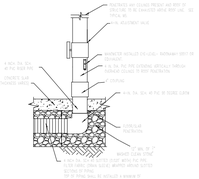

M3 FLOOR PENETRATION DETAIL
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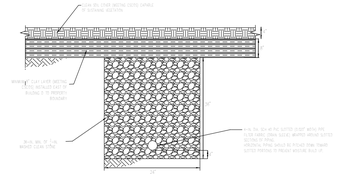
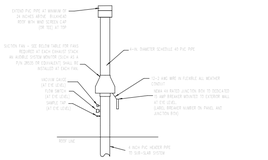


M4 TYPICAL EXTERIOR TRENCH DETAIL (SLOTTED)
NTS



M5 SUCTION FAN DETAIL
NTS

NOTES:

1. MULTIPLE EXTRACTION PITS OR SYSTEMS MAY BE MANIFOLD TOGETHER BELOW OR ABOVE ROOF PENETRATION TO COMMON EXHAUST FAN. SYSTEM COMBINATION TO BE REVIEWED TO PVE ENGINEER AND NYSDOH PRIOR TO INSTALLATION. FANS TO BE CONFIRMED WITH PERFORMANCE MONITORING FOLLOWING SUB-GRADE AND ABOVE-GRADE PIPE INSTALLATION.

2. THE SSDS EXHAUST MUST BE A MINIMUM OF 10 FEET FROM ANY BUILDING AIR INTAKE OR OPERABLE WINDOW.

3. ALL VENT RISERS SHALL BE CONSTRUCTED AS NOTED.

4. ALL VENT RISERS SHALL BE LABELED "SOIL VAPOR EXTRACTION VENT, DO NOT TAMPER" AT A MINIMUM OF EVERY 48".

5. THE SUCTION FAN SHALL BE A RADONAWAY RP265 OR APPROVED EQUAL. FAN TO BE PROVIDED BY CONTRACTOR.

6. VENT RISERS SHALL USE VIBRATION ISOLATING RUBBER LINED HANGERS AND BRACKETS.

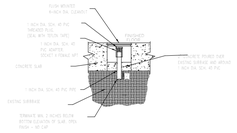
7. INSTALL BRACKETS TO SUPPORT RISER PIPING PER THE REQUIREMENT OF THE INTERNATIONAL MECHANICAL CODE.

8. ALL OPEN VENT PIPES THAT EXTEND THROUGH A ROOF SHALL BE TERMINATED AT LEAST 24 INCHES ABOVE THE ROOF. EXCEPT WHERE A ROOF IS TO BE USED FOR ANY PURPOSE OTHER THAN WEATHER PROTECTION OR MAINTENANCE, THE VENT EXTENSIONS SHALL BE RUN AT LEAST 7 FEET ABOVE THE ROOF.

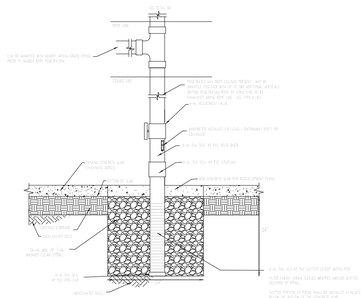
9. ELECTRICAL WIRING AND JUNCTION BOX TO BE INSTALLED IN ACCORDANCE WITH RADONAWAY SPECIFICATIONS.

FAN SELECTION

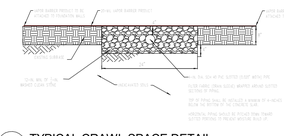
BLDG	FAN	WATTS	MAX. DP PRESS.(IN"WC)
BLDG A-NORTH	RADONAWAY RP265	96-136	2.3
BLDG A-SOUTH	RADONAWAY RP265	96-136	2.3
BLDG B	RADONAWAY RP265	96-136	2.3
BLDG C	RADONAWAY RP265	96-136	2.3
BLDG D & EXT	RADONAWAY RP380	96-138	2.0



M6 SUB-SLAB MONITORING POINT DETAIL
NTS



M7 SUMP PIT AND PENETRATION DETAIL
NTS



M8 TYPICAL CRAWL SPACE DETAIL
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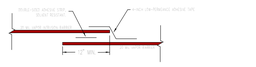

M10 VAPOR INTRUSION BARRIER OVERLAP DETAIL
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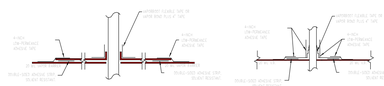
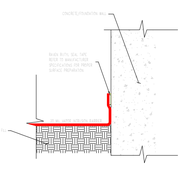


M11 VAPOR INTRUSION BARRIER PENETRATION DETAIL
NTS



M12 TYPICAL CONCRETE WALL TERMINATION DETAIL
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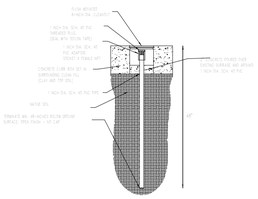
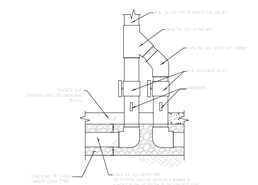


M13 EXTERIOR MONITORING POINT DETAIL
NTS



M14 BLDG. A FLOOR PENETRATION DETAIL
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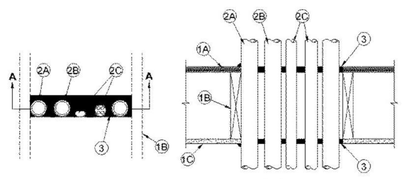

Section A-A

Floor-Ceiling Assembly — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Designs in the UL Fire Resistance Directory, as summarized below:
A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max area of rectangular opening cut in flooring is 43-1/2 sq in. (0.028 m2) with a max width dimension of 3 in. (76 mm) and with a max length dimension of 14-1/2 in. (368 mm). Longer dimension of rectangular opening to be perpendicular to wood joist direction.
B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
C. Gypsum Board* — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Max area of rectangular opening cut in gypsum board ceiling is 43-1/2 sq in. (0.028 m2) with a max width dimension of 3 in. (76 mm) and with a max length dimension of 14-1/2 in. (368 mm).
1A. Chase Wall — (Optional, Not Shown) - The through penetrants (Item 2) may be routed through a 1 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. (13 mm) greater than width of opening cut in sole and top plates to accommodate the through penetrants. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. Studs — Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
B. Sole Plate — Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max area of rectangular opening cut in sole plate is 43-1/2 sq in. (0.028 m2) with a max width dimension of 3 in. (76 mm) and with a max length dimension of 14-1/2 in. (368 mm).
C. Top Plate — The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm), two nom 2 by 6 in. (51 by 152 mm) or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max area of rectangular opening cut in top plate is 43-1/2 sq in. (0.028 m2) with a max width dimension of 3 in. (76 mm) and with a max length dimension of 14-1/2 in. (368 mm).
D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. Through Penetrants — One or more metallic or nonmetallic pipes, conduits, tubing or cables to be installed either concentrically or eccentrically within the opening. Min separation between penetrants to be 1 in. (25 mm). Annular space between the penetrants and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Penetrants to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of through penetrants may be used:
A. Metallic Penetrants — The following types and sizes of metallic pipes, conduits or tubes may be used:
A1. Steel Pipe — Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
A2. Iron Pipe — Nom 4 in. diam (or smaller) cast or ductile iron pipe.
A3. Copper Pipe or Tubing : — Nom 4 in. diam (or smaller) Type L (or heavier) copper tube or Regular (or heavier) copper pipe.
A4. Conduit — Nom 4 in. diam (or smaller) rigid steel conduit, electrical metallic tubing (EMT) or flexible steel or aluminum conduit.
B. Nonmetallic Penetrants — The following types and sizes of nonmetallic pipes, conduits or tubes may be used:
B1. Polyvinyl Chloride (PVC) Pipe — Nom 4 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
B2. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 4 in. diam (or smaller) SDR11 CPVC pipe for use in closed (process or supply) piping systems.
B3. Rigid Nonmetallic Conduit (RNC)+ — Nom 4 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA 70).
B4. Electrical Nonmetallic Tubing (ENT)+ — Nom 4 in. diam (or smaller) PVC tubing installed in accordance with the National Electrical Code (NFPA 70).
B5. Cross Linked Polyethylene (PEX) Tubing — Nom 2 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems.

3. Fill, Void or Cavity Material* - Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor or chase wall sole plate. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with bottom surface of gypsum board ceiling or chase wall top plate. Min 1/4 in. (6 mm) diam bead of fill material applied at point contact location on the top surface of floor or chase wall sole plate and at the penetrant/ceiling or penetrant/chase wall top plate interface.
SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant or Type WF300 Firestop Caulk

M15 TYPICAL ABOVE GRADE FLOOR PENETRATION DETAIL
N.T.S.

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE:
3/4" = 1'-0"

STATE OF NEW YORK
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POUGHKEEPSIE, NEW YORK

DATE ISSUED: 4/26/2023

PLAN REVISIONS

No.	DATE	DESCRIPTION

SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

DRAWING NAME:
MECHANICAL DETAILS

PROJECT NO:

DRAWING NO:
M-300.00

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. INSTALL ALL NEW WORK IN A NEAT WORKMANLIKE MANNER READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.

B. CODES, PERMITS AND INSPECTIONS:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF NYC BUILDING CODE, NYC BUILDING DEPARTMENT, BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.
2. THIS CONTRACTOR SHALL OBTAIN ALL EQUIPMENT APPROVALS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

C. SITE VERIFICATION:

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF THE BID, AND IF NOT RESOLVED TO SATISFACTION, SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE BID. SUBMISSION OF A BID SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.

D. CONTRACT DOCUMENTS:

1. PRIOR TO SUBMISSION OF A FORMAL BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND SPRINKLER AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID WHICH IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK AND APPROXIMATE LOCATION OF EQUIPMENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND COORDINATE FINAL LOCATIONS OF DIFFUSERS, GRILLES, REGISTERS, THERMOSTATS, SENSORS, SWITCHES AND ANY WALL MOUNTED DEVICES. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT.
3. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.

E. GUARANTEE:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE MECHANICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, AND IS UNDER CARE, CUSTODY, AND CONTROL OF THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP AND OPERATION OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNER'S PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE SYSTEM.
2. THE CONTRACTOR SHALL GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL INCLUDE RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THIS CONTRACTOR.
3. THIS CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL SYSTEMS UNTIL THE FINAL ACCEPTANCE OF THE WORK.
4. ALL AIR CONDITIONING UNIT COMPRESSORS AND REFRIGERATION COMPONENTS SHALL HAVE A 5-YEAR WARRANTY.

F. THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A201, LATEST EDITION, OR AS REQUIRED BY THE ARCHITECT'S DOCUMENTS, AND/OR THE STRUCTURAL ENGINEER'S DOCUMENTS, AS APPLICABLE, ARE PART OF THIS CONTRACT.

G. DEFINITIONS:

1. MECHANICAL CONTRACTOR, "THIS CONTRACTOR" - THE PARTY OR PARTIES HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE MECHANICAL WORK AS DESCRIBED HEREIN.
2. "THIS CONTRACT", "THE CONTRACT" - THE AGREEMENT COVERING THE WORK TO BE PERFORMED BY THIS CONTRACTOR.
3. "APPROVED", "EQUAL", "SATISFACTORY", "ACCEPTED", "ACCEPTABLE", "EQUIVALENT" -SUITABLE FOR USE ON THE PROJECT, AS DETERMINED BY THE ENGINEER BASED ON DOCUMENTS PRESENTED FOR SUCH DETERMINATION.
4. "THESE SPECIFICATIONS", "THIS SECTION, PART, DIVISION" (OF THE SPECIFICATION) - THE DOCUMENT SPECIFYING THE WORK TO BE PERFORMED BY "THIS CONTRACTOR".
5. "THE MECHANICAL WORK", "THIS WORK" - ALL LABOR MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION BY THE MECHANICAL CONTRACTOR.
6. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE" - THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
7. "FURNISH" - PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THE MECHANICAL WORK.
8. "INSTALL" - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE MECHANICAL WORK.
9. "PROVIDE" – "FURNISH" AND "INSTALL".
10. "NEW" - MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED.
11. "RELOCATE" - MOVE EXISTING EQUIPMENT AND ALL ACCESSORIES AS REQUIRED.
12. "REMOVE" - DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL ITEMS SHALL BE LEGALLY DISPOSED OF. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY AFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

1.02 SCOPE OF WORK

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE SAFE INSTALLATION OF ALL MECHANICAL WORK. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. DEMOLITION AND REMOVAL OF ITEMS AS REQUIRED.
2. DUCTWORK AND DUCTWORK ACCESSORIES.
3. PIPING AND PIPING ACCESSORIES INCLUDING ALL VALVING.
4. EQUIPMENT - INCLUDING BUT NOT LIMITED TO, PTAC UNITS, FANS, PUMPS, ETC.
5. TESTING AND BALANCING
6. CUTTING AND PATCHING.
7. SHOP DRAWINGS.
8. AS-BUILT DRAWINGS.
9. OPERATING AND MAINTENANCE MANUALS.
10. FULL COORDINATION WITH OTHER TRADES.
11. WARRANTY AND GUARANTEE.
12. PHASING AS REQUIRED BY OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR BUILDING MANAGEMENT.
13. FILING, PERMITS, SPECIAL AND PROGRESS INSPECTIONS
14. FULL TESTING AND STARTUP OF ALL SYSTEMS.

B. SECURE CERTIFICATES, PAY ALL FEES AND CHARGES FOR ALL WORK INSTALLED, CERTIFYING COMPLIANCE WITH ALL AUTHORITIES. CONTRACTOR TO COORDINATE WITH OWNER FOR REQUIRED SPECIAL INSPECTIONS AND OBTAIN ALL APPROVALS. DELIVER CERTIFICATES TO OWNER FOR SIGNING BEFORE FILING.

1.03 SHOP DRAWINGS

A. SUBMIT SHOP DRAWINGS CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN COMPLETED. SUBMIT ALL CERTIFIED EQUIPMENT CUTS WITH CONSTRUCTION WIRING DIAGRAMS AND AUTOMATIC TEMPERATURE CONTROL REQUIREMENTS. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:

1. DUCTWORK - PROVIDE DUCT SHOP STANDARDS AND LEAKAGE TEST CERTIFICATION, AS REQUIRED, AND 3/8 SCALE DUCT LAYOUT.
2. PIPING LAYOUT AND APPURTENANCES - PROVIDE PIPING, VALVING, CHEMICAL TREATMENT SHOP STANDARDS AND 3/8 SCALE PIPING LAYOUT WITH ALL VALVING.
3. INSULATION FOR DUCTWORK, PIPING AND EQUIPMENT.
4. EQUIPMENT CATALOG CUTS FOR ALL ITEMS TO BE UTILIZED ON PROJECT (FANS, PUMPS, AC UNITS, VARIABLE FREQUENCY DRIVES, VAV BOXES, ETC.).
5. AIR OUTLETS (DIFFUSERS, REGISTERS, GRILLES, ETC.).
6. AUTOMATIC TEMPERATURE CONTROL DIAGRAMS, DEVICES AND SEQUENCE OF OPERATION.
7. CERTIFIED AIR AND WATER BALANCING REPORT.
8. AS-BUILT DRAWINGS AT PROJECT COMPLETION OF THE INSTALLED CONDITION OF WORK.

B. THE QUANTITY OF SHOP DRAWINGS SHALL AS A MINIMUM BE FOUR (4) COPIES OF 8-1/2" X 11" SUBMISSIONS AND FIVE (5) PRINTS OF ALL DRAWINGS. SPECIFIC JOB REQUIREMENTS MAY BE MORE STRINGENT AND CONTRACTOR IS RESPONSIBLE TO OBTAIN REQUIREMENTS FROM OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR ARCHITECT.

1.04 MAINTENANCE MANUALS

A. SUBMIT FOUR (4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE THE FOLLOWING:

1. OPERATING AND MAINTENANCE INSTRUCTIONS OF ALL SYSTEMS.
2. MANUFACTURER'S CATALOG CUTS ON ALL EQUIPMENT.
3. AUTOMATIC TEMPERATURE CONTROL SYSTEMS WITH SEQUENCE OF OPERATIONS, CATALOG CUTS OF ALL DEVICES AND POINT-TO-POINT WIRING DIAGRAMS.
4. CERTIFIED FINAL AIR AND WATER BALANCING REPORT.
5. ALL ITEMS SUBMITTED FOR REVIEW IN SHOP DRAWING SECTION.

1.05 AS-BUILT DRAWINGS

A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS DUE TO FIELD COORDINATION, BULLETINS, OR ADDENDA.
B. CONTRACTOR SHALL REVISE SHOP DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AS-BUILT CONDITION (PIPING AND DUCTWORK) DRAWINGS UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REPRODUCIBLE AS-BUILT DRAWINGS ARE TO BE SIGNED AND CERTIFIED BY THE INSTALLING CONTRACTOR THAT THIS IS THE AS-BUILT CONDITION OF THE WORK

1.06 SERVICE AND WARRANTY (MAINTENANCE CONTRACT)

A. THIS CONTRACTOR SHALL PROVIDE AS AN ADD ALTERNATE PRICE, A FULL ONE YEAR SERVICE AND WARRANTY OF ALL MECHANICAL COMPONENTS AND SYSTEMS, WITH PRICES FOR YEARS 2, 3 AND 4 FOLLOWING THIS FIRST YEAR. AT THE TIME OF ACCEPTANCE OF PROJECT, THE TENANT OR OWNER'S REPRESENTATIVE WILL DECIDE TO ACCEPT WHICH ALTERNATE, IF ANY.

1.07 SUBSTITUTIONS

A. NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE SUBSTITUTION. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION AS TO WHY A SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE-BY-LINE BASIS. IF THE SUBSTITUTE IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.

B. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS. CONTRACTOR SHALL REPLACE ANY EQUIPMENT THAT DOES NOT MEET THESE REQUIREMENTS AT HIS OWN EXPENSE. ANY MODIFICATIONS TO ASSOCIATED SYSTEMS OR ADDITIONAL COSTS ATTRIBUTED TO THIS SUBSTITUTION SHALL BE AT THIS CONTRACTOR'S EXPENSE.

C. CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS

PART 2 - PRODUCTS/APPLICATIONS

2.01 DUCTWORK AND ACCESSORIES

A. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL, FLEXIBLE, AND SCHEDULE 40 PVC FOR SSDS LATEST EDITION, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, LATEST EDITION, NFPA 90A LATEST EDITION, AND 2014 NEW YORK CITY BUILDING CODE. THE MORE STRINGENT REQUIREMENT OF ANY CODES SHALL APPLY.

B. PROVIDE ALL SUPPORTING AND HANGING DEVICES IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE AND SMACNA.

C. DUCTWORK LAYOUT SIZING AND ROUTING MUST BE ADHERED TO BY THE MECHANICAL CONTRACTOR WHO IS RESPONSIBLE FOR ALL DUCT SIZE CHANGES AND RELOCATIONS TO ACCOMMODATE SPACE AND STRUCTURAL CONDITIONS. OFFSETS AND TRANSFORMATIONS SHALL PRESERVE THE FULL INSIDE CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON THE DRAWINGS.

D. DUCTWORK (NEW AND EXISTING TO BE REUSED) SHALL HAVE PRESSURE CLASSIFICATION, SEALING REQUIREMENTS AND LEAKAGE TESTING IN ACCORDANCE WITH SMACNA AND AS LISTED BELOW UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS. 1. 2" CLASS: ALL OTHER LOW PRESSURE DUCTWORK. SEAL CLASS C, LEAKAGE CLASS 24 (RECTANGULAR) OR CLASS 12 (ROUND).

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE:

STATE OF NEW YORK
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DATE ISSUED: 4/26/2023

PLAN REVISIONS

No.	DATE	DESCRIPTION

SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

DRAWING NAME:
MECHANICAL NOTES-1

PROJECT NO:

DRAWING NO:
M-400.00

2. LEAKAGE TESTING:
ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER OR OWNER'S REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL COLLARS, CAPS, ELECTRIC POWER, ETC. NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SCHEDULING THE TEST NO LESS THAN THREE (3) BUSINESS DAYS PRIOR TO ITS INTENDED OCCURRENCE. LOW PRESSURE DUCTWORK (2" CLASS) SHALL BE TESTED ON AN AS-NEEDED BASIS AT THE ENGINEER'S DIRECTION. LEAKAGE TEST PROCEDURES SHALL FOLLOW THE OUTLINES AND CLASSIFICATIONS IN THE SMACNA HVAC DUCT LEAKAGE TEST MANUAL. IF SPECIMEN FAILS TO MEET ALLOTTED LEAKAGE LEVEL, THE CONTRACTOR SHALL MODIFY TO BRING IT INTO COMPLIANCE AND SHALL RETEST IT UNTIL ACCEPTABLE LEAKAGE IS DEMONSTRATED. TESTS AND NECESSARY REPAIR SHALL BE COMPLETED PRIOR TO CONCEALMENT OF DUCTS.

E. MATERIALS:

1. SUB-SLAB DEPRESSURIZATION SYSTEM: UNLESS OTHERWISE SPECIFIED OR INDICATED, DUCTS SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC ROUND DUCTWORK
2. FLEXIBLE DUCTWORK SHALL NOT BE USED ON THIS PROJECT.

F. FABRICATION:

1. CONFORM TO ASTM D 1785 REQUIREMENTS FOR METAL THICKNESS, REINFORCING, JOINTS, AND SEALING FOR MAXIMUM STATIC PRESSURES INVOLVED.
2. DUCTWORK SHALL BE INSTALLED WITH STRICT ACCORDANCE TO ALL MECHANICAL DETAILS IN THIS SET.
3. BRANCH CONNECTIONS: PROVIDE 45 DEGREE ENTRY OR CONICAL TAPS. PROVIDE RADIUS TYPE FITTINGS FOR DIVIDED FLOW BRANCHES.

G. GRAVITY (NON-MOTORIZED DAMPERS)

1. MAXIMUM LEAKAGE RATE OF 20 CFM/FT2 @ 1" W.G.
2. SUBMIT MANUFACTURER'S PRODUCT DATA.

a. INCLUDE LEAKAGE, VELOCITY, PRESSURE DROP AND MAXIMUM PRESSURE DATA
b. INDICATE MATERIALS, CONSTRUCTION, AND DIMENSIONS.
c. INCLUDE PRESSURE DROP DATA FOR ALL DAMPER SIZES IN ACCORDANCE WITH AMCA 500-D TEST FIGURE 5.3 (DUCTED INLET, DUCTED OUTLET)
d. INCLUDE A COPY OF INSTALLATION INSTRUCTIONS.

3. DAMPERS SHALL BE MANUFACTURED UNDER AN ISO-9001 QUALITY CONTROL PROGRAM
4. DAMPERS SHALL BE MANUFACTURED BY A REPUTABLE COMPANY WHO IS A MEMBER OF THE AIR MOVEMENT CONTROL ASSOCIATION (AMCA)
5. FRAME: DAMPER FRAME SHALL BE 14 GA. GALVANIZED STEEL (OPTIONAL: ALUMINUM, 304 STAINLESS STEEL OR 316 STAINLESS STEEL) FORMED INTO A 8" X 2" CHANNEL.
6. BLADES: DAMPER BLADES SHALL BE A MINIMUM 0.070 INCH THICK ALUMINUM STRENGTHENED BY LONGITUDINAL VEE GROOVES RUNNING THE ENTIRE LENGTH OF EACH BLADE. BLADE ORIENTATION IS HORIZONTAL.
7. BLADE STOPS: EACH BLADE STOP (AT TOP AND BOTTOM OF DAMPER FRAME) SHALL OCCUPY NO MORE THAN ½" OF THE DAMPER OPENING AREA TO ALLOW FOR MAXIMUM FREE AREA AND TO MINIMIZE PRESSURE LOSS ACROSS THE DAMPER.
8. BLADE EDGE SEALS: TPE
9. LINKAGE: EXTERNAL, HEAVY DUTY TYPE WITH STEEL CLEVIS ARMS AND PLATED STEEL TIE BARS AND PIVOT PINS WITH NYLON PIVOT BEARINGS. STAINLESS STEEL IS AVAILABLE AS AN OPTION.
10. AXLES: MINIMUM 3/8" SQUARE STAINLESS STEEL.
11. BEARINGS: GALVANIZED STEEL BALL BEARING IS STANDARD. ACTUAL WITH STAINLESS STEEL BALL IS OPTIONAL.
12. FINISH: MILL ON ALL ALUMINUM. PAINT COATINGS ARE OPTIONAL.

H. HANGERS AND SUPPORTS

1. PROVIDE ALL PIPE HANGERS, HANGAR RODS SUPPORTS, INSERTS, ATTACHMENTS, CLAMPS, GUIDES, SUPPLEMENTAL STEEL AND ANCHORS AS REQUIRED TO INSTALL PIPING SYSTEM SIZED TO ACCOMMODATE THE SYSTEM LOADS. HANGERS AND SUPPORTS ARE TO BE IN ACCORDANCE WITH MSS RECOMMENDATIONS AND TO BE MANUFACTURED BY GRINNELL OR APPROVED EQUAL.
2. PROVIDE INSULATED PROTECTIVE SADDLES FOR INSULATED PIPING.
3. PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH RECOMMENDATIONS OF MSS SP-69 AND ALL APPLICABLE CODES. ALL THREADED ROD IS TO BE GALVANIZED. PROVIDE 2" VERTICAL ADJUSTMENT FOR ALL HANGERS. PROVIDE ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, BRANCH PIPING OVER 5 FEET, AND CONCENTRATED LOADS DUE TO VALVES, STRAINERS AND OTHER ACCESSORIES.

2.01 HANGERS AND SUPPORTS

A. GENERAL

1. ELECTRICAL POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACT; CONTROL WIRING SHALL BE BY THE HVAC CONTRACTOR. CONTROL WIRING SHALL BE DEFINED AS ANY 12V, 24V, OR 120V WIRING INSTALLED FOR PURPOSED OTHER THAN PROVIDING PRIMARY ELECTRICAL POWER TO EQUIPMENT.
2. THE MECHANICAL CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL POINT-POINT, COMPLETELY COORDINATED WIRING DIAGRAMS AND INDICATE ALL SOURCE POWER REQUIREMENTS AND ALL FIELD WIRING TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR.

2.02 VIBRATION ISOLATION PRODUCTS

A. FURNISH AND INSTALL ALL NECESSARY VIBRATION ISOLATORS, VIBRATION HANGERS, MOUNTING PADS, RAILS, ETC., TO ISOLATE VIBRATION AND SOUND FROM BEING TRANSMITTED TO THE BUILDING CONSTRUCTION. ALL VIBRATION ISOLATION PRODUCTS SHALL BE SPECIFICALLY DESIGNED FOR THEIR INTENDED USE.
B. MANUFACTURER OF VIBRATION ISOLATION EQUIPMENT SHALL HAVE THE FOLLOWING RESPONSIBILITIES:
1. DETERMINE VIBRATION ISOLATOR SIZES AND LOCATIONS.
2. PROVIDE SUITABLE PIPING AND EQUIPMENT VIBRATION ISOLATION SYSTEMS.
3. GUARANTEE SPECIFIED ISOLATION SYSTEM ATTENUATION AND DEFLECTION.
4. PROVIDE INSTALLATION INSTRUCTIONS, DRAWINGS AND FIELD SUPERVISION TO ASSURE PROPER INSTALLATION AND PERFORMANCE. STARTERS SHALL BE SELECTED TO SUIT MOTOR RUNNING AND STARTING CHARACTERISTICS.
C. ISOLATION SYSTEMS SHALL BE MANUFACTURED BY MASON INDUSTRIES OR APPROVED EQUAL BY THE ENGINEER.
D. MOUNTING TYPES:
1. STATIC DEFLECTION OF ISOLATORS SHALL BE A MINIMUM OF 90% EFFICIENCY. PROVIDE CORROSION PROTECTION FOR EQUIPMENT MOUNTED OUTDOORS.
2. GROUND MOUNTING OF FACTORY ASSEMBLED CONDENSING UNITS - NEOPRENE IN SHEAR -TYPE SUPER W.
3. MOUNTING OF CEILING-SUPPORTED FANS AND AIR HANDLING UNITS - SPRING ISOLATORS -(TYPEDNHS).
4. PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL FANS AND DUCTWORK (REFER TO DUCTWORK SECTION FOR SPECIFICATIONS).

2.03 EQUIPMENT

A. PROVIDE ALL EQUIPMENT AND ACCESSORIES OF ALL THE SIZES AND CAPACITIES AS SCHEDULED AND AS INDICATED ON THE DRAWINGS.
B. INSTALL EQUIPMENT IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND ALL AUTHORITIES HAVING JURISDICTION.
C. PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTING AS INDICATED ON THE DRAWINGS, IN VIBRATION SPECIFICATION.

2.08 AUTOMATIC TEMPERATURE CONTROLS

ELECTRIC WIRING:

1. ALL ELECTRICAL WORK (EXCEPT FOR MOTOR FEEDERS, WIRING BETWEEN MOTORS, MOTOR CONTROLLERS, FEEDER PANELS, FUSES, CIRCUIT BREAKERS AND BUS BARS) REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THIS CONTRACTOR. WORK SHALL INCLUDE BUT NOT BE LIMITED TO TIME SWITCHES, DAMPER MOTORS, DAMPER SWITCHES, ELECTRIC THERMOSTATS, ELECTRIC RELAYS, E/P SWITCHES, INTERLOCKING WIRING, WIRE, CONDUIT, ETC.
2. ALL 115 VOLT POWER REQUIRED FOR CONTROL PURPOSES SHALL BE PROVIDED BY THE CONTROL CONTRACTOR FROM A SOURCE ESTABLISHED BY THE ELECTRICAL CONTRACTOR.
3. THE CONTROL MANUFACTURER SHALL INCLUDE WIRING DIAGRAMS IN HIS SHOP DRAWINGS SUBMITTALS FULLY COORDINATED WITH THE ELECTRICAL CONTRACTOR'S WORK. IT SHALL BE THE AUTOMATIC TEMPERATURE CONTROL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL WIRING AND CONDUIT AS REQUIRED TO ACHIEVE THE FUNCTION CALLED FOR IN THESE SPECIFICATIONS, CONFORMING WITH LOCAL CODES FOR MATERIAL AND INSTALLATION. THE ELECTRICAL SPECIFICATION FOR THE PROJECT'S ELECTRICAL WORK IS TO BE FOLLOWED.
4. FURNISH A CERTIFICATE INDICATING THE METHOD OF WIRING COMPLIANCE WITH LOCAL CODES AS PART OF THE FIRST SHOP DRAWING SUBMITTAL.

PART 3 - EXECUTION

3.01 DEMOLITION, REMOVAL AND RELOCATION

A. REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL
BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT TO BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.
B. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
C. EQUIPMENT REQUIRED TO BE TEMPORARILY DISCONNECTED AND RELOCATED SHALL BE CAREFULLY REMOVED, STORED, CLEANED, REINSTALLED, RECONNECTED, AND MADE OPERATIONAL.
D. ALL EXISTING WORK NOT INDICATED FOR DEMOLITION SHALL BE PROTECTED FROM DAMAGE. WHERE EXISTING WORK TO REMAIN IS DAMAGED OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE TO OWNER'S AND BUILDING MANAGER'S SATISFACTION AT NO COST TO THE OWNER OR BUILDING MANAGEMENT.
E. GENERAL CONTRACTOR REMOVE ALL CEILING IN AREAS WHERE NEW DUCTWORK OR PIPING IS TO BE INSTALLED OR EXISTING IS ALTERED, AS PER ARCHITECT'S INSTRUCTIONS.
F. ALL NECESSARY CUTTING AND PATCHING TO ACCOMMODATE THE NEW HVAC WORK SHALL BE PERFORMED BY THIS CONTRACTOR AND COORDINATED WITH BUILDING MANAGEMENT SO AS TO MINIMIZE DISRUPTION OF EXISTING TENANTS AND SERVICES. RESTORE ALL ITEMS TO MATCH EXISTING CONDITIONS.
G. ALL EXISTING MATERIAL AND EQUIPMENT TO BE REMOVED UNDER THIS CONTRACT WILL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE LEGALLY DISPOSED OF BY THIS CONTRACTOR AS DIRECTED BY THE ARCHITECT OR OWNER. REFRIGERATION CONTAINED IN EXISTING EQUIPMENT TO BE REMOVED SHALL BE RECLAIMED OR LEGALLY DISPOSED OF IN ACCORDANCE WITH EPA REQUIREMENTS AND ASHRAE.
H. PROVIDE FOR LEGAL REMOVAL AND DISPOSAL OF ALL RUBBISH AND DEBRIS FROM THE BUILDING AND SITE. COORDINATE ALL DEMOLITION AND REMOVALS WITH BUILDING MANAGEMENT.

3.02 CONNECTION TO EXISTING WORK

A. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. INSTALL ISOLATION DAMPERS AT CONNECTION TO EXISTING DUCTWORK. PROVIDE TEMPORARY DUCTWORK AND PIPING CONNECTIONS AS REQUIRED TO MINIMIZE SHUTDOWN TIME.
B. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT AND BUILDING MANAGER.
C. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES.

3.03 CHASING, CHOPPING OR CORE DRILLING

A. PRIOR TO ANY CHASING, CHOPPING, OR CORE DRILLING BEING PERFORMED, THIS CONTRACTOR SHALL FIELD INVESTIGATE EXISTING CONDITIONS AND COORDINATE WITH ALL APPROPRIATE TRADES AND BUILDING MANAGEMENT TO ENSURE THAT WORK WILL BE IN HARMONY WITH OTHER WORK AND NOT AFFECT ANY EXISTING BUILDING SYSTEMS. THIS WORK MUST BE APPROVED BY BUILDING MANAGEMENT PRIOR TO PROCEEDING.

3.04 SYSTEM COMMISSIONING

A. PRIOR TO FULL OPERATION, A COMPLETE DEMONSTRATION AND TESTING OF THE SYSTEM OPERATING FUNCTIONS AND ALARMS SHALL BE PERFORMED BY THIS CONTRACTOR IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND ENGINEER. THIS TESTING SHALL TAKE PLACE AFTER HAVING SATISFACTORILY MET THE REQUIREMENTS OF SHOP DRAWING ACCEPTANCE. COMMISSIONING OF THE SYSTEM SHALL BE SCHEDULED BEFORE THE SPACE IS OCCUPIED LEAVING ENOUGH TIME TO CORRECT THE SYSTEM'S DEFICIENCIES AND AFTER SHOP DRAWING ACCEPTANCE. UPON SUCCESSFUL COMPLETION OF SYSTEM OPERATION, THE CONTRACTOR SHALL SUBMIT A STATEMENT STATING THAT THE FULL OPERATION OF ALL SYSTEMS, FUNCTIONS AND ALARMS HAS BEEN DEMONSTRATED AND ARE OPERATIONAL AS WELL AS A LISTING OF ALL SYSTEMS, ALARMS AND FUNCTIONS THAT HAVE BEEN COMMISSIONED. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW AND ACCEPTANCE TO THE OWNER, OWNER'S REPRESENTATIVE AND ENGINEER BEFORE FINAL ACCEPTANCE CAN TAKE PLACE.

HVAC DUCT MATERIAL	
APPLICATION	EXHAUST
TYPICAL (UNLESS OTHERWISE SPECIFIFED)	SCHEDULE 40 PVC PIPE

DUCT PRESSURE CLASS	
APPLICATION	PRESSURE CLASS
SUPPLY AIR DUCTWORK FROM MAIN AND/OR TERMINAL UNIT TO AIR OUTLET	2" W.G.
RETURN AIR DUCTWORK	2" W.G.
OUTDOOR AIR DUCTWORK	2" W.G.
GENERAL EXHAUST DUCTWORK	2" W.G.
TOILET EXHAUST DUCTWORK	2" W.G.

GENERAL NOTES:

INITIAL FILING

DRAWING SCALE:

STATE OF NEW YORK
DAVID EDUARDO SIVIN
095217
LICENSED PROFESSIONAL ENGINEER

PREPARED BY:

PVE
25 W. 39TH STREET, 12TH FLOOR
NEW YORK, NY 10018
PHONE: (646)-602-4999
E-MAIL: STRUCTURES@PVE-LLC.COM
WEB: PVE-LLC.COM

PREPARED FOR:
NORTHSIDE JUNCTION LLC, 1 CIVIC CENTER PLAZA #200
POUGHKEEPSIE, NEW YORK

DATE ISSUED: 4/26/2023

PLAN REVISIONS

No.	DATE	DESCRIPTION

SITUATED IN:
58 PARKER AVENUE, POUGHKEEPSIE, NY

PROJECT NAME:
58 PARKER: SUB-SLAB SOIL EXHAUST INSTALLATION

DRAWING NAME:
MECHANICAL NOTES-2

PROJECT NO:

DRAWING NO:
M-401.00

APPENDIX D
MITIGATION SYSTEM
CUT SHEETS

RadonAway
The world's leading radon fan manufacturer

RSA1 ALARM

RADON SYSTEM ALARM

The RadonAway RSA1 Radon System Alarm is an advanced vacuum monitoring device utilizing piezoresistive pressure sensor (PPS) technology. It provides homeowners with an easy-to-read, easy-to-use system monitor that requires no interpretation. Audible and visual indicators alert the homeowners to low radon system vacuum pressure in compliance with the latest ANSI/AARST *Soil Gas Mitigation Standards* system monitor requirements.

This monitor does not measure radon levels.

FEATURES

- Easy Installation
- Pipe or Wall Mount (2" - 6" Pipe)
- Battery Operated (No Wiring Required)
- Modern, Compact Design
- Vacuum Sensing
- Visual and Audible Indicators
- Alarm* and Service Delay Functions
- Hush and Test Buttons

*Visual alert only during first 48 hours, 7 days or 30 days depending on selected delay

RSA1 ALARM BENEFITS

The RadonAway RSA1 Radon System Alarm is more than just an alarm. It is a required radon system component that adds value as an important safety feature when installed. The RSA1 also provides a future income stream when you tie it into a service program that includes system inspection and retesting.

Added Value At a low additional cost, homeowners can be assured that they will be alerted if their radon system is not operating properly. As a safety feature and a system requirement it provides you with an add-on item that sells itself.

Return Business As part of a radon system service program, your one-time system installation customer becomes a long-term customer.

Mitigation Standard Compliance *Soil Gas Mitigation Standards for Existing Homes* (ANSI/AARST SGM-SF-2017) includes "Active Notification Monitors Required" (section 9.2.2), which states that "capacity for active visual and/or audible notification in the event of ASD (Active Soil Depressurization) fan or other mechanical failure shall be provided to actively warn occupants or other individuals responsible for monitoring." Installing the RSA1 Alarm with all your systems ensures that you are in compliance with this Radon Standard requirement.

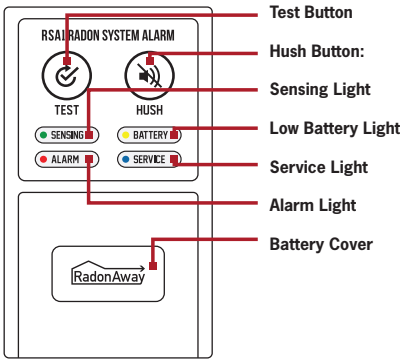
sales@radonaway.com | radonaway.com | 800-767-3703

RSA1 ALARM

PACKAGE INCLUDES

- RSA1 Radon System Alarm
- Wall Mount Adapter
- Pipe Mount Adapter
- Flexible Connector Elbow
- Battery
- Product Instructions

FUNCTIONAL SPECIFICATIONS



Sensing Light Normal Operation @:
-0.1" WC to -20" WC

Service Light:
Illuminates upon 3+ Alarm activations within the selected alarm delay duration

Hush Button:
When pressed silences alarm for 7 days, also for alarm delay duration selection

Alarm Dimensions:
2.19" x 3.75" x 1.37"
(W x H x D)

Alarm Light:
Illuminates @ ≥90% reduction in baseline pressure

Low Battery Light:
Illuminates @ <3.35 Volts
(uses 3.6V 1/2 AA Battery)

Test Button:
When depressed activates audible alarm and illuminates lights

Overpressure Condition:
+/- 20" WC
(piezoresistive pressure sensor)

MOUNTING EXAMPLES

Remote horizontal pipe mount

Direct vertical pipe mount

Remote wall mount

RadonAway
The world's leading radon fan manufacturer

RP PRO SERIES

Installs white, stays white

Radon Mitigation Fan

All RadonAway® fans are specifically designed for radon mitigation. RP Series Fans provide superb performance, run ultra-quiet and are attractive. They are ideal for most sub-slab radon mitigation systems.

Features

- Eternalast™ polycarbonate plastic housing
- Energy efficient
- Ultra-quiet operation
- Meets all electrical code requirements
- Water-hardened motorized impeller
- Seams sealed to inhibit radon leakage (RP140 & RP145 double snap sealed)
- ETL Listed - for indoor or outdoor use
- Thermally protected motor
- Rated for commercial and residential use

MODEL	P/N	FAN DUCT DIAMETER	WATTS	RECOM. MAX. OP. PRESSURE "WC	TYPICAL CFM vs. STATIC PRESSURE WC				
					0"	.5"	1.0"	1.5"	2.0"
RP140	28460	4"	15-21	0.7	135	70	-	-	-
RP145	28461	4"	41-72	1.7	166	126	82	41	3
RP260	28462	6"	47-65	1.3	251	157	90	-	-
RP265	28463	6"	95-139	2.3	375	282	204	140	70
RP380	28464	8"	96-138	2.0	531	415	268	139	41

Model	A	B	C
RP140	4.5"	9.7"	8.5"
RP145	4.5"	9.7"	8.5"
RP260	6"	11.75"	8.6"
RP265	6"	11.75"	8.6"
RP380	8"	13.41"	10.53"

MADE IN USA

ETL Listed

All RadonAway® inline radon fans are covered by our 5-year, hassle-free warranty.

RP140 Only

For Further Information, Contact Your Radon Professional:

Rev E 0921
P/N 02047

RadonAway
The world's leading radon fan manufacturer

RP PRO SERIES

Installs white, stays white

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Rev E 0921
P/N 02047

(317) 346-4110
www.drainagesolutionsinc.com

GATE VALVE TECHNICAL DATA

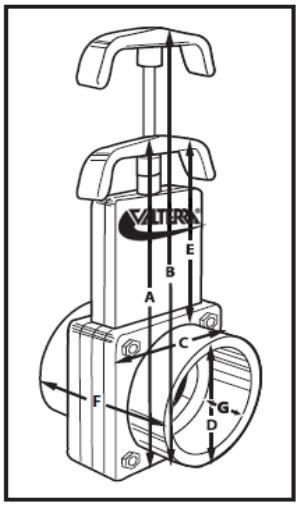
MATERIAL & GENERAL SPECIFICATIONS

	1½" (50mm)	2" (63mm or 75/90mm)	3" (90mm)	4" (110mm)	6"/8" (160/200mm)	10" / 12"
Color	White or Black (Gray)	White or Black (Gray)	White or Black (Gray)	White (Gray)	White (Gray)	White
Hubs	PVC or ABS (PVC)	PVC or ABS (PVC)	PVC or ABS (PVC)	PVC (PVC)	PVC	PVC
Body	PVC or ABS (PVC)	PVC or ABS (PVC)	PVC or ABS (PVC)	PVC (PVC)	ABS	ABS
Shaft	304SS	304SS	304SS	304SS	304SS	304SS
Paddle	Polypro	Polypro or 304SS	Polypro or 304SS	304SS	304SS	304SS
Handle	Plastic or Die Cast Al	Plastic or Die Cast Al	Plastic or Die Cast Al	Die Cast Al	304SS	304SS
Seals	Sarlink	Sarlink	Sarlink	Sarlink	Sarlink	Sarlink
PSI	45	40	30	20	10	10
Mid-Flow Max Closing Pressure	6 psi	1 psi (PP) 15 psi (SS)	.5 psi (PP) 9 psi (SS)	8 psi	2.5 psi	2.5 psi
Air Cylinder	Reinforced Nylon	SS or Reinforced Nylon	SS or Reinforced Nylon	SS	SS	SS

Notes:
Vacuum Applications: 1½" to 4" tested to 26 Hq in.
Metric Valves are Gray PVC

MANUAL VALVE DIMENSIONS (Inches)(mm)

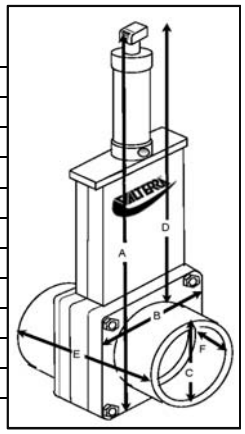
Size	A	B	C	D	E	F	G
1.5 ABS	6.5	8.625	2.875	2.375	3.9375	2.875	0.7
1.5 PVC	6.5	8.625	2.875	2.375	3.9375	3.375	1.25
50mm	168	222	76	64	98	98	35
2 ABS	7.5	10.25	3.37	2.6875	4.5	3.125	0.75
2 PVC	7.5	10.25	3.37	2.75	4.5	3.5	1.125
63mm	191	260	86	73	111	105	37
75/90mm	238	324	111	89	130	133	48
3 ABS	9.25	13	4.375	3.9375	5.1875	4.5	1.6
3 PVC	9.25	13	4.375	3.9375	5.1875	4.5	1.8
90mm	238	324	111	105	130	133	48
4 PVC	13.25	18	6.625	5	7.4375	5.1875	1.75
110mm	330	454	168	127	181	130	44
6 PVC	22.75	31.125	11	7.25	13.25	11.125	4.375
160mm	572	800	279	181	343	279	111
8 PVC	22.75	31.125	11	9.3125	12.1875	13.75	5.67
200mm	572	797	279	216	327	276	108
10 PVC	35	48.5	18	11.5	16.99	13.75	5
12 PVC	35	48.5	18	13.5	18	15.375	6



"B" Dimension is height of valve in fully open position

PNEUMATIC VALVE - ALUMINUM/STAINLESS STEEL AIR CYLINDER DIMENSIONS (Inches)(mm)

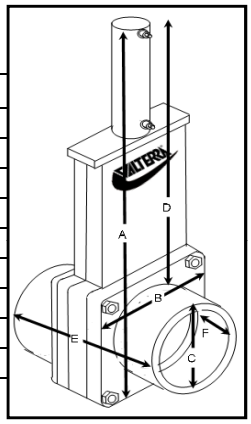
Size	A	B	C	D	E	Air Tubing Size	Recomm. Operating Pressure	Cylinder Air Volume
2	12.5	3.5	2.75	8.5	3	1/8"	55-70 psi	1.209 in³
63mm	318	86	73	216	105	1/8"	55-70 psi	1.209 in³
3	15.5	4.5	4	11.25	4.5	1/8"	55-70 psi	1.662 in³
90mm	394	111	105	286	133	1/8"	55-70 psi	1.662 in³
4	19.5	6.5	5	13.25	5	1/8"	55-70 psi	1.742 in³
110mm	489	168	127	337	130	1/8"	55-70 psi	1.742 in³
6	In Development							
160mm	In Development							
8	In Development							
200mm	In Development							
10	In Development							
12	In Development							



Note: Aluminum/SS Air Cylinders assembled with Air Restrictor - removal of restrictor voids warranty

PNEUMATIC VALVE - REINFORCED NYLON PLASTIC AIR CYLINDER DIMENSIONS (Inches)(mm)

Size	A	B	C	D	E	Air Tubing Size	Recomm. Operating Pressure	Cylinder Air Volume
1.5	10	2.875	1.875	7.375	2.875	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³
50mm	254	76	64	187	98	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³
2	11	3.5	2.75	8	3	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³
63mm	279	86	73	203	105	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³
3	13	4.5	4	8.5	4.5	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³
90mm	330	111	105	216	133	I.D. 4 mm x O.D. 6 mm	60-75 psi	1.196 in³



CEMENT

VALVE FITTING	PIPE	SIZE	CEMENT
ABS	PVC	1.5-6"	Use IPS #794 or equivalent
ABS	ABS	1.5-3"	Use IPS #771 or equivalent
PVC	ABS	1.5-6"	Use IPS #794 or equivalent
PVC	PVC	1.5-12"	Use IPS #717 or equivalent

STATIC HEAD PRESSURE

Feet Head	PSI
1	0.43
3	1.03
6	2.6
9	3.9
12	5.2
15	6.51
20	8.66
30	12.99
40	17.32
50	21.65

► Feet Head to PSI, multiply by 0.434

► PSI to Feet Head, multiply by 2.3

WORKING TEMPERATURE

Material	Suggested Maximum Working Temperature	
ABS	205° F	96° C
PVC	167° F	75° C
PC	280° F	137° C

VAPORBLOCK® PLUS™ VBP20

Under-Slab Vapor / Gas Barrier

RAVEN INDUSTRIES

Product Description

VaporBlock® Plus™ 20 is a seven-layer co-extruded barrier made from state-of-the-art polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is a highly resilient underslab / vertical wall barrier designed to restrict naturally occurring gases such as radon and/or methane from migrating through the ground and concrete slab. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon and other harmful VOCs.

VaporBlock® Plus™ 20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001:2008 Certified Management System.

Product Use

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

Size & Packaging

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.

Under-Slab Vapor/Gas Retarder

Product	Part #
VaporBlock Plus 20	VBP 20

APPLICATIONS

- Radon Barrier
- Methane Barrier
- VOC Barrier
- Under-Slab Vapor Retarder
- Foundation Wall Vapor Retarder

VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

VAPORBLOCK® PLUS™ VBP20

Under-Slab Vapor / Gas Barrier

ISO 9001:2008 CERTIFIED MANAGEMENT SYSTEM

		VAPORBLOCK PLUS 20	
PROPERTIES	**TEST METHOD**	**IMPERIAL**	**METRIC**
Appearance		White/Gold	
Thickness, Nominal		20 mil	0.51 mm
Weight		102 lbs/MSF	498 g/m²
Classification	ASTM E 1745	CLASS A, B & C	
Tensile Strength lbf/in (N/cm) average MD & TD (new material)	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
Impact Resistance	ASTM D 1709	2600 g	
Maximum Use Temperature		180° F	82° C
Minimum Use Temperature		-70° F	-57° C
Permeance (new material)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft²·hr·in·Hg)	0.0064 Perms g/(24hr·m²·mm Hg)
(after conditioning) Perms (same measurement as above permeance)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr-ft²	0.0028 gm/hr-m²
Radon Diffusion Coeffiecient	K124/02/95	$< 1.1 \times 10^{-13}$ m²/s	
Methane Permeance	ASTM D 1434	$< 1.7 \times 10^{-10}$ m²/d• atm 0.32 GTR (Gas Transmission Rate) ml/m²•D•ATM	

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.
Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located on our website.
ASTM E-1643 also provides general installation information for vapor retarders.

VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.

RAVEN INDUSTRIES
Engineered Films Division
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Sioux Falls, SD 57117-5107
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Email: efdsales@ravenind.com
www.ravenefd.com

Limited Warranty available at www.RavenEFD.com