GALLAGHER BASSETT | TECHNICAL SERVICES

June 10, 2022

Ben Pomeroy
Whitlock Group, LLC
45 Kent Avenue 3
Brooklyn, NY 11249 via e-mail: sirpomeroy@gmail.com

Re: Sub-slab Depressurization System Completion Report
1124-1130 Wyckoff Avenue, Queens, New York
GBTS Project: PQ18052

Dear Mr. Pomeroy:

This letter report documents the completion of sub-slab depressurization (SSD) systems as specified in the *Sub-Slab Depressurization System Design Document* (July 2020) prepared by Gallagher Bassett Technical Services (GBTS). The SSD systems were installed during building renovations (completed by In House Group, Inc. and its subcontractors) between July 2020 and April 2022. GBTS provided technical guidance, conducted site inspections, performed system tests to ensure the proper installation of system components and confirm the efficacy of the completed systems, and prepared an Operations and Maintenance (O&M) Manual to ensure the continuous operation of the active systems.

OVERVIEW

The property contains a "U" shaped commercial building with partial cellars. Previous soil vapor sampling conducted by GBTS in August 2018 documented the chlorinated solvents tetrachloroethene (PCE) and trichloroethene (TCE) beneath the building footprint at levels suggesting a potential threat of soil vapor intrusion, and it was recommended that active SSD systems be installed during renovations to prevent any vapor intrusion into occupied interior spaces.

SSD SYSTEM CONSTRUCTION AND INSTALLATION

The building is serviced by three (3) SSD systems. Systems 1 and 2 depressurize the eastern and western building wings and System 3 depressurizes the cellars as well as a slab-on-grade area between each wing. Each system is comprised of the following main components: A gas permeable layer to allow for the collection and movement of sub-slab vapors; a network of sub-slab perforated piping or suction pits to collect vapor; aboveground piping through the building envelope; a powered rooftop fan to actively vent accumulated vapors above the building roof-line, and visual and audible gauges to alert on-site personnel of system performance and failure.

Systems 1 and 2 are comprised of loops of perforated PVC piping embedded within a gas permeable layer. Each loop is connected to a cast-iron riser pipe (RP-1 and RP-2) that extends vertically through the building and connects to an electric roof-top mounted fan (Fantech RN2EC). System 3 is comprised of a network of perforated PVC pipe embedded within the gas permeable layer at the central slab-on-grade area, and a series of suction pits and riser pipes at each cellar. The suction pits and the piping network are manifolded to a single electric roof-top mounted fan (OBAR GBR76UD).

Gas Permeable Layer

The gas permeable layer at slab-on-grade areas was constructed by placing clean, ¾" crushed stone throughout the footprint of the building and trenching along the loops of perforated pipe. All sub-slab piping was wrapped in a non-woven geotextile product (to prevent fine particulates from entering the piping system over the long term) and covered with at least an inch of ¾" stone, creating a final gas permeable layer of at least 6". A 20-mil vapor barrier (Ravenblock VBP20) was installed over the stone layer prior to pouring a new 6" thick concrete slab.

Suction Points

Two (2) suction points were installed at each cellar. Pits were constructed by cutting out 12" by 12" openings through the slabs and hand excavating 6" of soil, then installing a 6" layer of ¾" stone to allow for the collection of vapors. A vertical cast-iron riser was installed, with its opening embedded within the layer of stone, prior to re-pouring the concrete. The suction points in each cellar manifold into one riser pipe, with RP-3 at the western cellar and RP-4 at the eastern cellar (the branch servicing the central slab-on-grade area also manifolds into RP-3), which in turn manifold into a single active fan at roof level.

Permanent Sub-Slab Monitoring Points

Cox-Colvin Vapor Pins were installed as permanent sub-slab monitoring points (SSMPs) for ongoing system monitoring and sample collection purposes (five PVC inserts pre-installed at slab-on-grade areas to ensure a proper seal through vapor barrier penetrations, and two in each cellar, totaling 9 permanent SSMPs).

Pressure measurements were collected from each monitoring point (after the systems were activated and balanced) using a digital micro manometer capable of measuring pressure to a thousandth of an inch of water column (IWC), in order to verify the efficacy of the SSD systems. Values of -0.004 inches water column (IWC) or less are considered adequate for demonstrating sub-slab depressurization. The following table provides pressure data collected on February 8, 2022.

Pressure Measurements at Permanent Sub-Slab Monitoring Points

SSMP	Recorded Pressure (IWC)
SSMP-1 (West side – North)	-0.017
SSMP-2 (West side – South)	-0.005
SSMP-3 (East side – North	-0.009
SSMP-4 (East side – South	-0.015
SSMP-5 (South-central)	-0.004
SSMP-6 (West cellar)	-0.069
SSMP-7 (West cellar)	-0.052
SSMP-8 (East cellar)	-0.033
SSMP-9 (East cellar)	-0.011

Visual and Audible Monitoring Devices

Visual pressure gauges (Dwyer Mini-Helic II) and audible alarms (Radonaway Checkpoint 2a) were installed at RP-1 through RP-4 in order to verify continued operation of the SSD systems and to alert on-site personnel of fan failures. GBTS verified the proper operation of each gauge and alarm by cycling the fans on and off and confirming that each gauge dropped to zero and each alarm produced an audible tone and a red visual indicator light when there was no air flowing within the riser.

All SSD systems components inspected by GBTS on February 8, 2022 were observed to be properly installed and in good condition. As-built drawings of the SSD systems are presented as Attachment A and photographs of the system installation are provided as Attachment B.

An O&M Manual (provided as Attachment C) was prepared for the Site. The O&M Manual provides information and inspection requirements to ensure the continued operation of the SSD systems at the Site, as well as manufacturer operating manuals for installed system components.

CONCLUSION AND RECOMMENDATIONS

Three (3) sub-slab depressurization (SSD) systems were installed at the property at 1124-1130 Wyckoff Avenue, in conformance with specifications presented in the *Sub-Slab Depressurization System Design Document* (July 2022) prepared by Gallagher Bassett Technical Services. Pressure testing confirms that the buildings are being adequately depressurized and the SSD systems are working as intended. These findings support the conclusion that the SSD systems are effectively depressurizing the buildings to prevent soil vapor intrusion into occupied interior spaces.

No further action is recommended at this time. The SSD systems should be operated continuously, and be regularly inspected and maintained, in accordance with the requirements of the O&M Manual.

Please call Erick Salazar at (845) 867-4716 should you have any questions or comments. We appreciate the opportunity to provide this service to you and look forward to working with you in the future.

Sincerely,

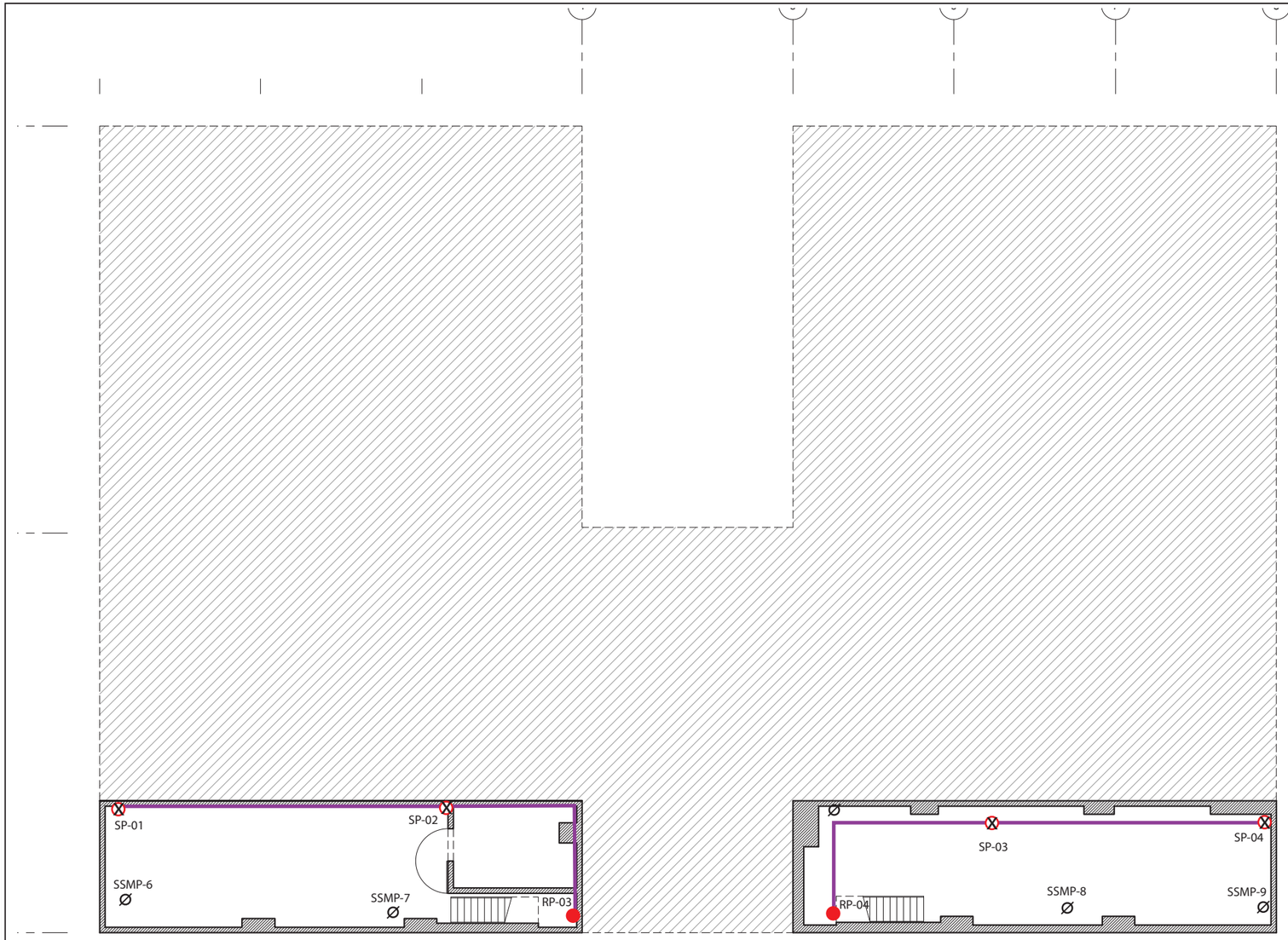
Erick Salazar
Environmental Scientist
Gallagher Bassett Technical Services

Scott Spitzer
Technical Director – Environmental Consulting
Gallagher Bassett Technical Services

Attachments: A – As-Built Maps
B – System Installation Photographs
C – SSDS Operations and Maintenance Manual

ATTACHMENT A

As-Built Maps



Notes:

1. Visible expansion joints and slab cracks or openings greater than 1/16" throughout the area to be depressurized were properly sealed with Sikasil®-728 NS sealant.
2. Sump pumps and utility enclosures throughout the area to be depressurized were evaluated by a qualified environmental consultant and the SSDS installer to determine proper sealing method.
3. Six (6) suction points (SPs, 3" Ø x 12", SP-01 to SP-06) were constructed at the indicated locations, following suction pit detail.
4. Piping materials above and below ground comply with materials specified in NYC DOB Mechanical Code, Section 512, latest edition. All exterior pipes are Schedule 40 PVC and all interior pipes are cast iron, unless otherwise noted.
5. All PVC joints were sealed with plumber's cement (or similar product) applied according to the manufacturer's specifications. Cast iron no-hub couplers at all cast iron pipe unions.
6. Horizontal piping is pitched down from the riser pipe towards suction points at 1/8" per foot (1% slope) to facilitate condensation drainage.
7. Appropriate fire stop details were installed at any location in which piping penetrates a fire rated wall.
8. Piping inside and outside the building is mounted to the nearest building column, beam or supporting structure with hangers, clamps, or brackets in accordance with all applicable code and/or manufacturer's recommendations.
9. All overhead piping maintains a minimum distance of 6'-8" to floor.
10. Discharge point (DP) extends a minimum of 20" above the roof. DPs are at least 10' from other buildings, HVAC intakes, windows or doors.
11. A powered fan has been installed at each riser pipe, following construction details, by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.
12. Sub-slab monitoring points (SSMPs) were installed for field testing and monitoring purposes in accordance with design document specification. Penetrations through vapor barrier and slab were sealed in accordance with manufacturer specifications. Adequate negative pressure at the SSMPs are defined as equal to or less than -0.004 in. w.c.
13. U-manometers or equivalent pressure gauges were installed at each vertical pipe connected to a SP at visible locations as indicators of negative pressure.
14. A warning alarm (voice dialer system, flashing light indicator, or approved equal) was installed by a licensed electrical contractor to indicate fan failure.
15. A 4" butterfly valve (or approved equal, one per SP) was installed for system balancing purposes. Butterfly valve was installed at an accessible location along the pipe connecting the SP to the main overhead piping connecting multiple SPs.
16. All U-manometers, visible SSDS piping in the exterior and interior portions of the building, and powered fans are clearly labeled as "Sub-Slab Venting System" by means of stickers, stencil or other approved marking directly on each item.

0 10 20
SCALE IN FEET
(APPROXIMATELY)

Legend:

- ceiling pipe (3" cast iron)
- vertical riser (3" cast iron)
- suction point
- location of sub-slab monitoring point

Base map provided by Cody & Wyckoff - Basement Level - Existing Floor Plan dated 6/17/20.
All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

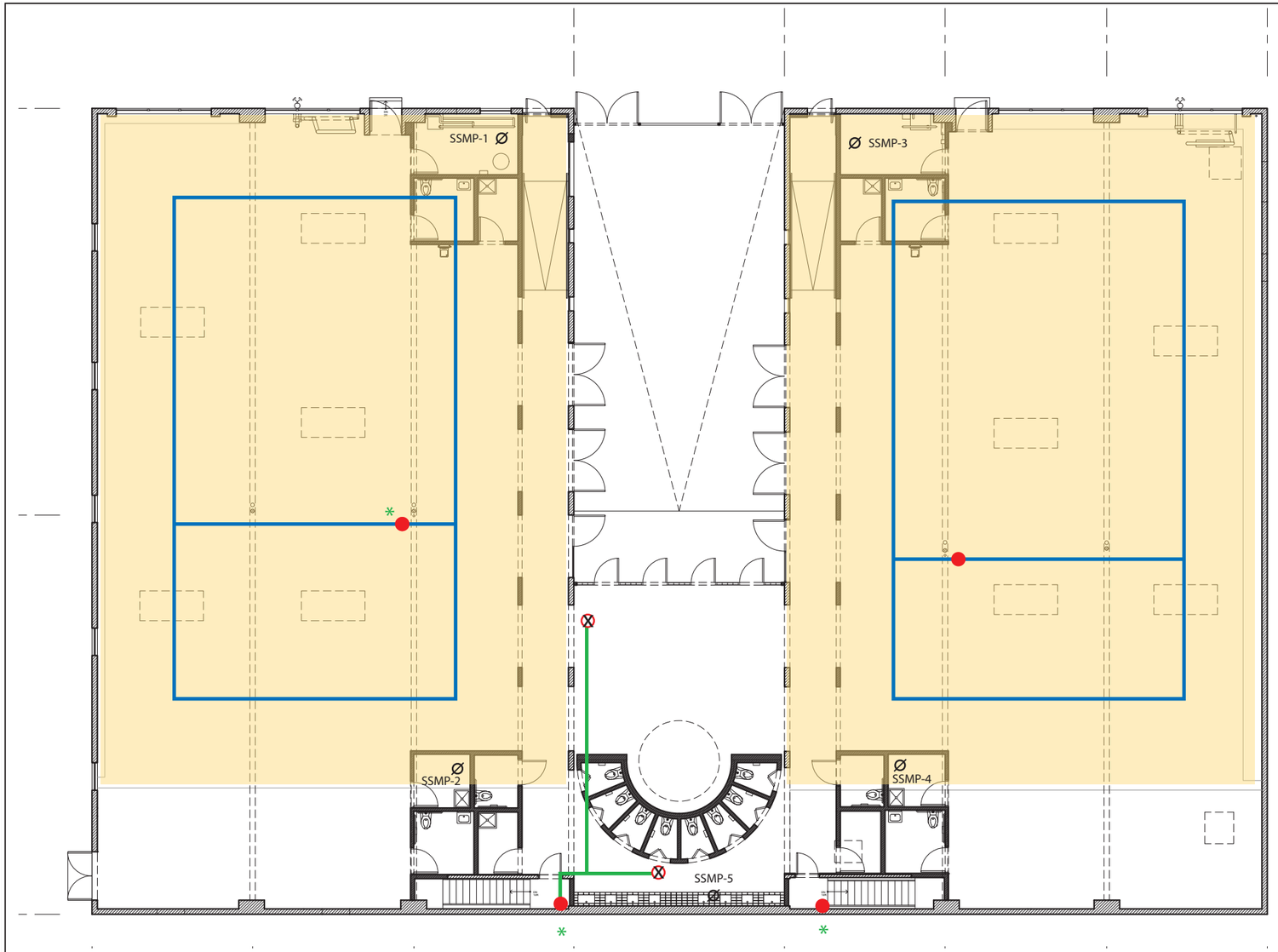
As-Built
Sub-Slab Depressurization System Layout - Basement and Former UST Area

11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30

Scale as shown

June 2022 | Attachment A1



Notes:

1. Visible expansion joints and slab cracks or openings greater than 1/16" throughout the area to be depressurized were properly sealed with Sikasil®-728 NS sealant.
2. Sump pumps and utility enclosures throughout the area to be depressurized were evaluated by a qualified environmental consultant and the SSDS installer to determine proper sealing method.
3. Six (6) suction points (SPs, 3" Ø x 12", SP-01 to SP-06) were constructed at the indicated locations, following suction pit detail.
4. Piping materials above and below ground comply with materials specified in NYC DOB Mechanical Code, Section 512, latest edition. All exterior pipes are Schedule 40 PVC and all interior pipes are cast iron, unless otherwise noted.
5. All PVC joints were sealed with plumber's cement (or similar product) applied according to the manufacturer's specifications. Cast iron no-hub couplers at all cast iron pipe unions.
6. Horizontal piping is pitched down from the riser pipe towards suction points at 1/8" per foot (1% slope) to facilitate condensation drainage.
7. Appropriate fire stop details were installed at any location in which piping penetrates a fire rated wall.
8. Piping inside and outside the building is mounted to the nearest building column, beam or supporting structure with hangers, clamps, or brackets in accordance with all applicable code and/or manufacturer's recommendations.
9. All overhead piping maintains a minimum distance of 6'-8" to floor.
10. Discharge point (DP) extends a minimum of 20" above the roof. DPs are at least 10' from other buildings, HVAC intakes, windows or doors.
11. A powered fan has been installed at each riser pipe, following construction details, by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.
12. Sub-slab monitoring points (SSMPs) were installed for field testing and monitoring purposes in accordance with design document specification. Penetrations through vapor barrier and slab were sealed in accordance with manufacturer specifications. Adequate negative pressure at the SSMPs are defined as equal to or less than -0.004 in. w.c.
13. U-manometers or equivalent pressure gauges were installed at each vertical pipe connected to a SP at visible locations as indicators of negative pressure.
14. A warning alarm (voice dialer system, flashing light indicator, or approved equal) was installed by a licensed electrical contractor to indicate fan failure.
15. A 4" butterfly valve (or approved equal, one per SP) was installed for system balancing purposes. Butterfly valve was installed at an accessible location along the pipe connecting the SP to the main overhead piping connecting multiple SPs.
16. All U-manometers, visible SSDS piping in the exterior and interior portions of the building, and powered fans are clearly labeled as "Sub-Slab Venting System" by means of stickers, stencil or other approved marking directly on each item.

0 10 20
SCALE IN FEET
(APPROXIMATELY)

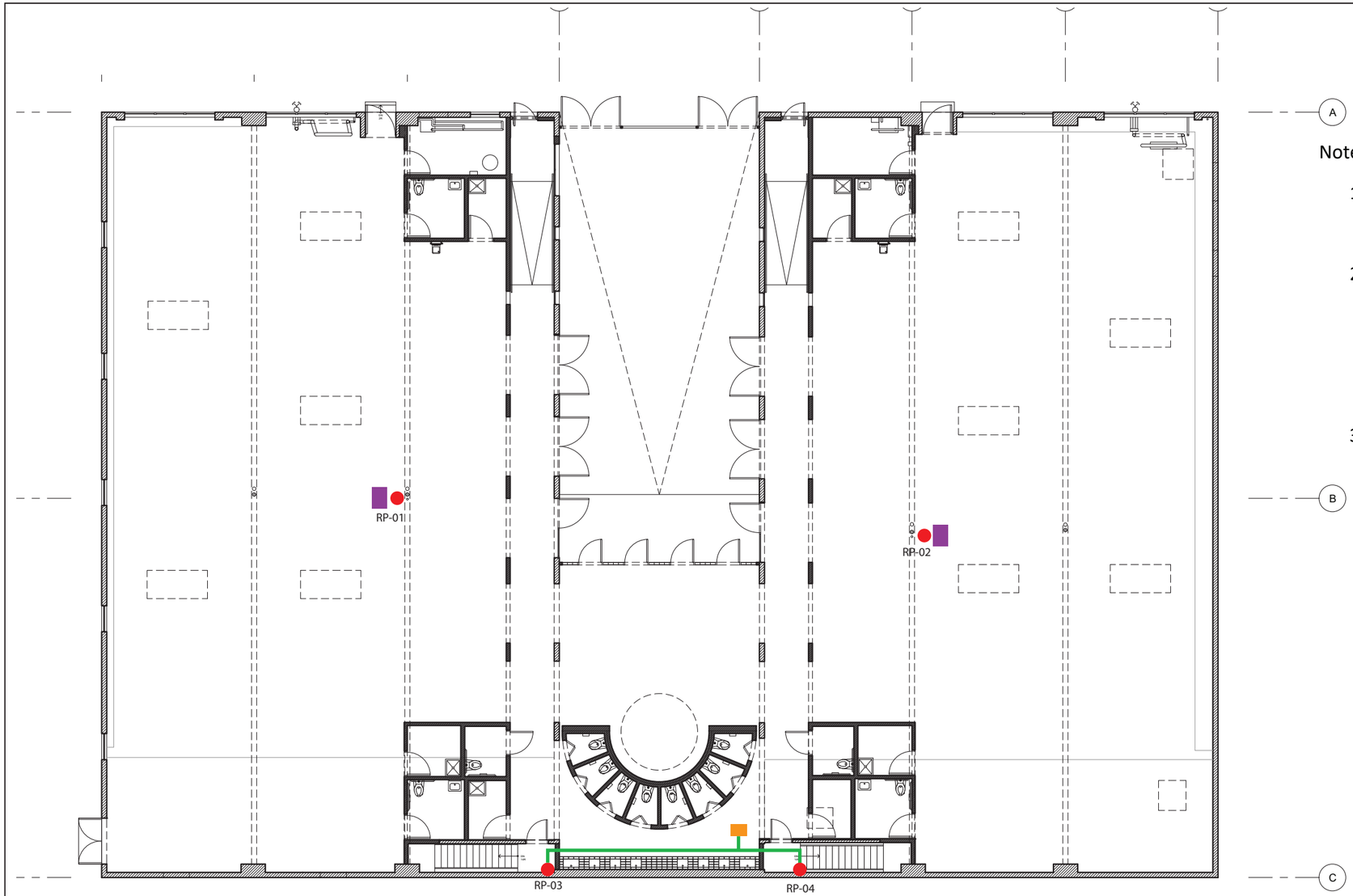
Legend:
- Schedule 40 perforated PVC piping (4")
- Schedule 40 non-perforated PVC piping (3")
- vertical riser (3" cast iron)
- access panel to be provided for monitoring purposes
- Ø proposed location of sub-slab monitoring point
- suction point
- extent of 6" continuous gravel below slab

Base map provided by Cody & Wyckoff - Basement Level - Existing Floor Plan dated 6/17/20.
All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

As-Built Sub-Slab Depressurization System Layout - First Floor

11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30
Scale as shown
June 2022 | Attachment A2



Notes:

1. All equipment was installed consistent with this document and manufacturer's specifications.
2. Powered fans were installed at each riser by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.
3. RP-03 and RP-04 were manifolded to single discharge point below roof level.

0 10 20
SCALE IN FEET
(APPROXIMATELY)

Legend:

- Schedule 40 non-perforated PVC piping (4")
- vertical riser (3" cast iron)
- fan on roof (OBAR 76UD)
- fan on roof (Fantech RN2EC)

Base map provided by Cody & Wyckoff - Roof Level - Existing Floor Plan dated 6/17/20.
All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

As-Built Sub-Slab Depressurization System Layout - Roof Level

11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30

Scale as shown

June 2022 | Attachment A3

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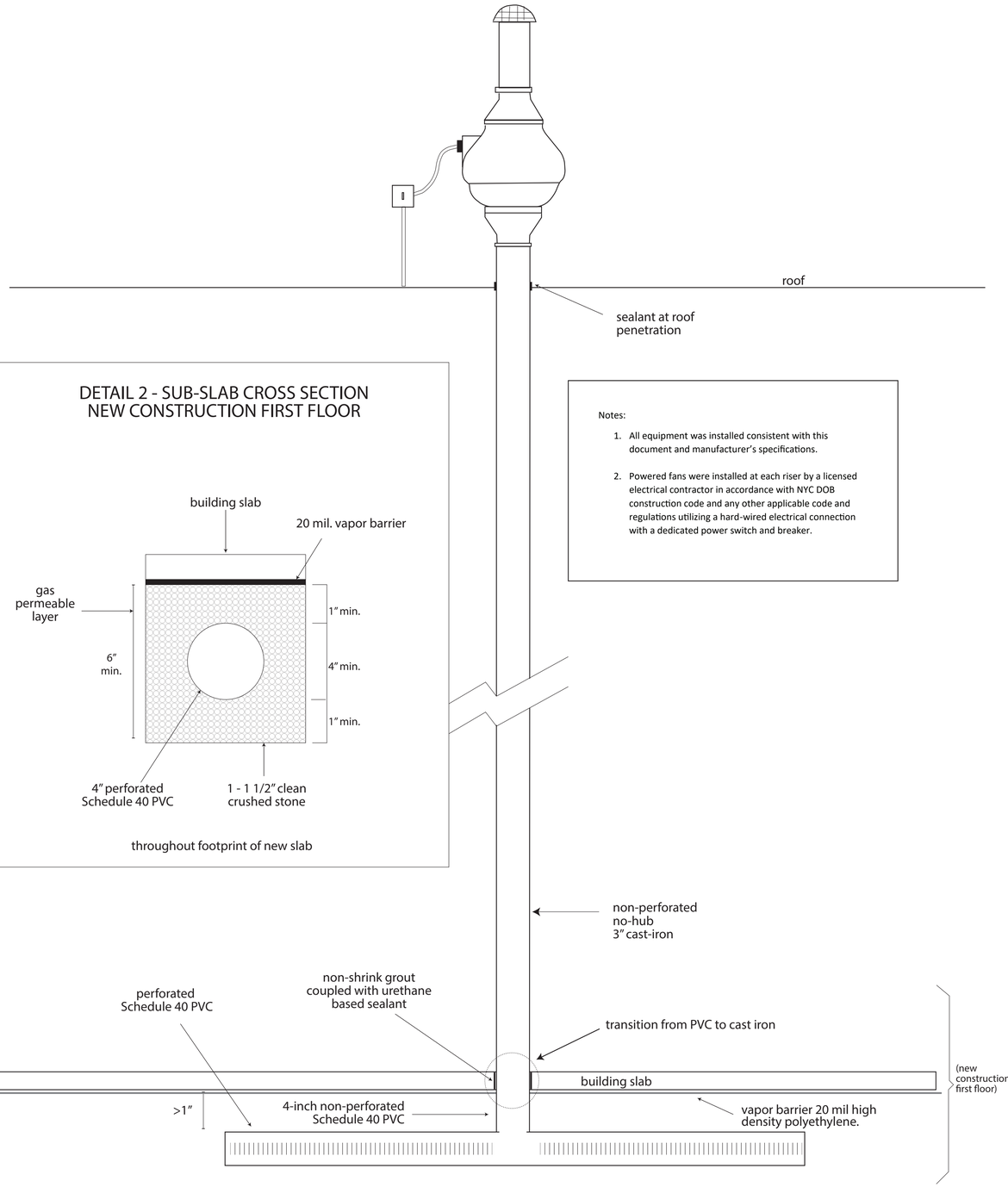
DETAIL 1 - SYSTEM CONFIGURATION - NEW CONSTRUCTION FIRST FLOOR



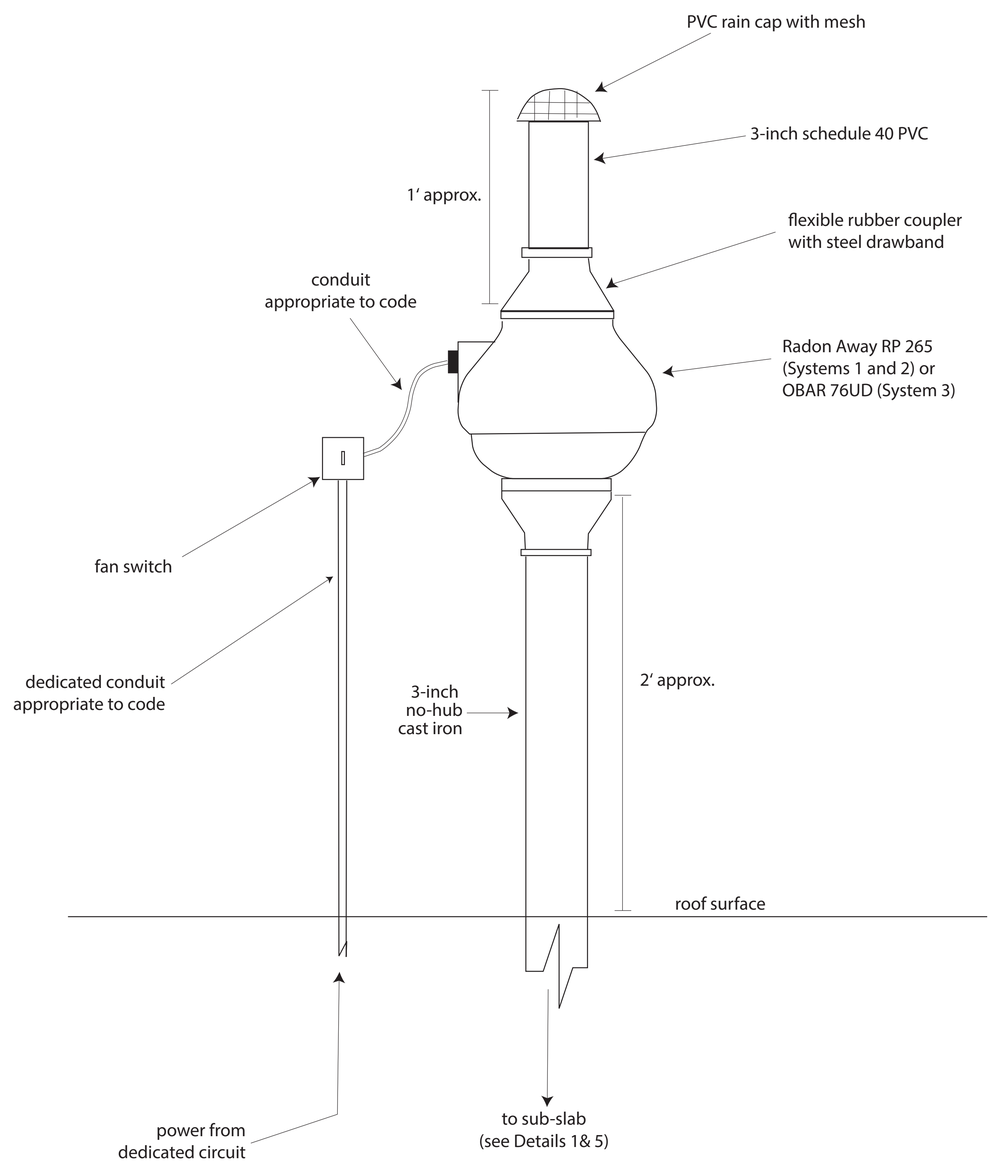
DETAIL 2 - SUB-SLAB CROSS SECTION NEW CONSTRUCTION FIRST FLOOR

throughout footprint of new slab

Notes:

1. All equipment was installed consistent with this document and manufacturer's specifications.
2. Powered fans were installed at each riser by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.

DETAIL 3 - ROOF TOP CONFIGURATION - APPLICABLE TO ALL SYSTEM CONFIGURATIONS

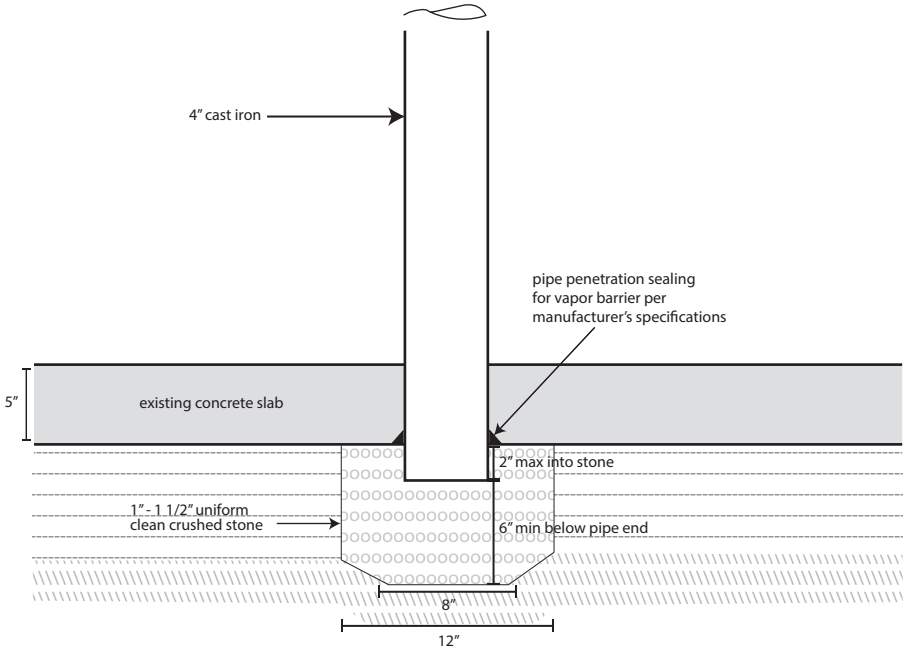


All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

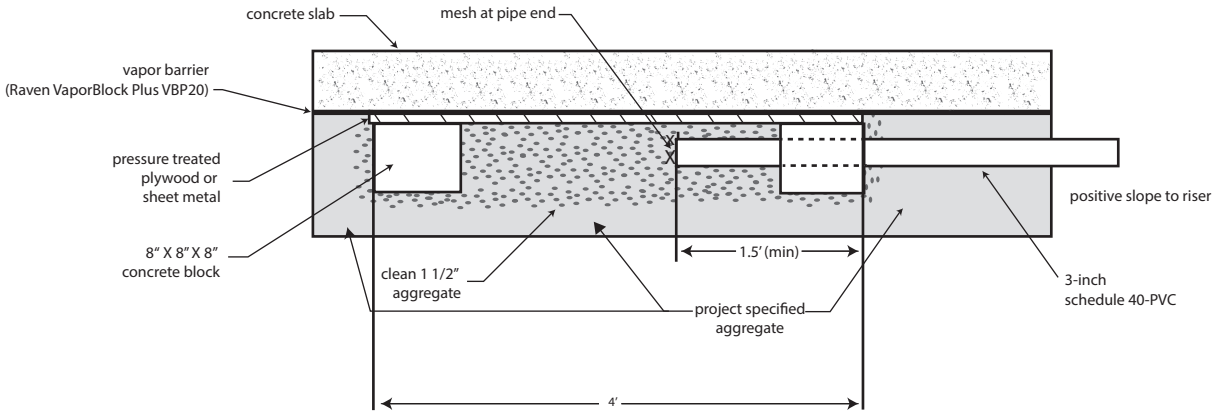
As-Built Sub-Slab Depressurization System Schematic - Details 1, 2 and 3

11-24 Wyckoff Avenue Borough of Queens, New York	File: PQ18052.30	
	June 2022	Attachment A4

DETAIL 4 - VERTICAL SUCTION PIT - BASEMENT (SP-01 THROUGH SP-04)



DETAIL 5 - SUCTION PIT - FORMER UST AREA



Notes:

1. Slab penetrations and opening were sealed with non-shrinking grout or equivalent and finished with non-VOC sealer.
2. Aggregate for each pit is ASTM #5.
3. Piping materials and all brackets comply with materials specified in NYC DOB sanitary code, latest edition.
4. Overhead piping has been pitched down from the vertical exhaust stack towards suction points at 1/8" per foot.
5. Appropriate fire stopping has been installed at any location in which PVC piping penetrates a fire rated wall or ceiling.
6. Minihelic or equivalent pressure gauge was installed at each vertical pipe location at approximate eye level.
7. A 3-inch butterfly value was installed servicing each suction pit, location approved by the engineer.
8. All visual gauges, SSDS piping interior and exterior and powered fans are clearly labeled by means of sticker, stencil and other approved permanent marking.

As-Built
Sub-Slab Depressurization System Schematic - Details 4 and 5
11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30

June 2022

Attachment A5

ATTACHMENT B

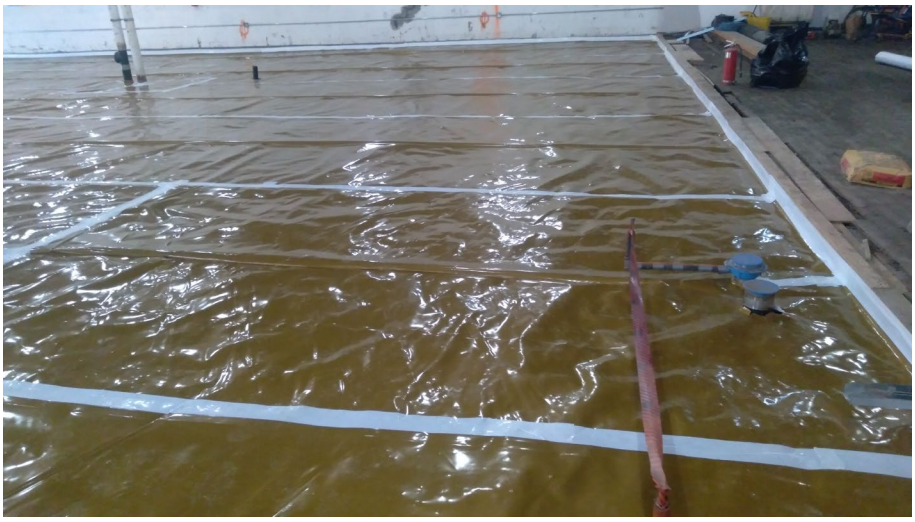
System Installation Photographs

1. Gas permeable layer and installation of fabric-wrapped perforated pipe at western wing

2. Gas permeable layer and installation of fabric-wrapped perforated pipe at eastern wing

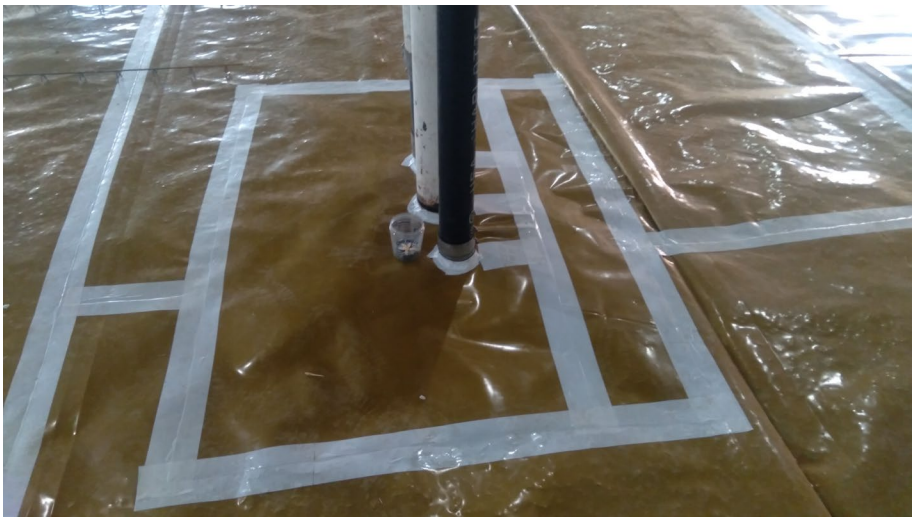
3. Typical riser connection at RP-1 and RP-2, and wrapped pipe (non-woven geotextile fabric) within layer of crushed stone

4. Vapor barrier installation at west wing

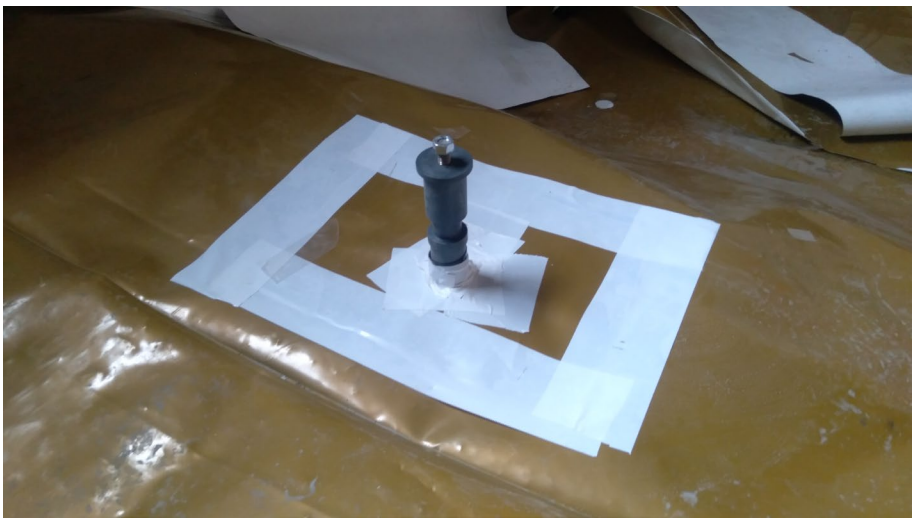


5. Vapor barrier installation at east wing

6. Typical manufacturer recommended 12” overlap between seams and gas permeable layer below



7. Typical riser penetrations per manufacturer specifications

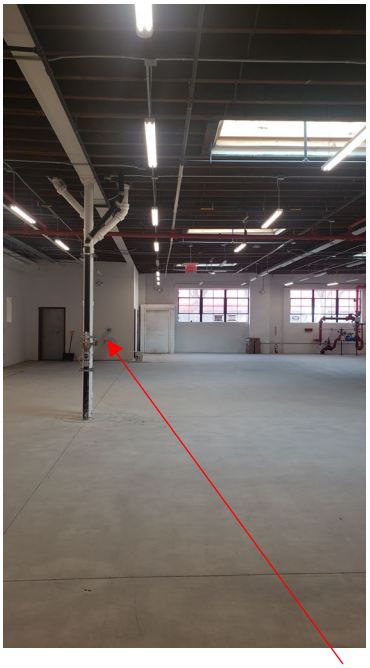


8. Typical permanent sub-slab monitoring point pre-installed through vapor barrier

9. Typical vapor barrier installation at edges

9. Typical preparation of vapor barrier prior to pouring concrete slab

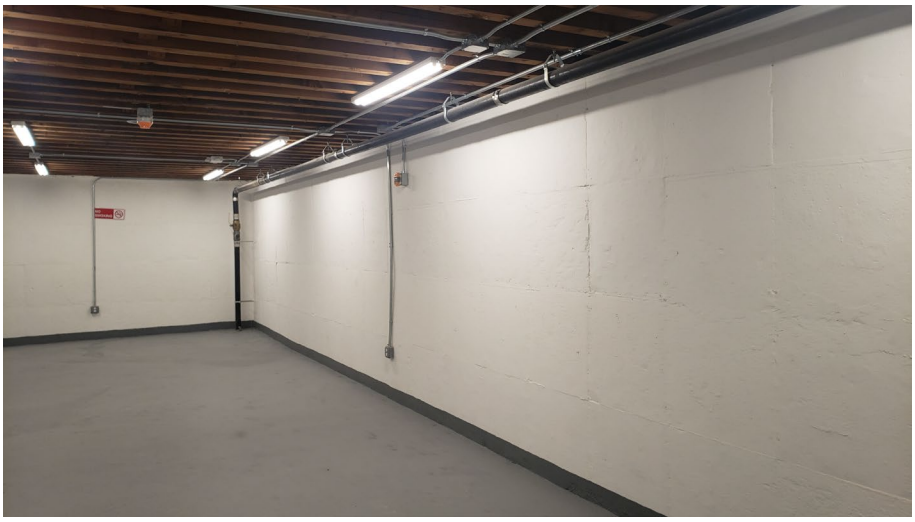
11. Completed slab and RP-1 at west wing



12. Completed slab and RP-2 at east wing

13. Typical suction pit construction at cellar

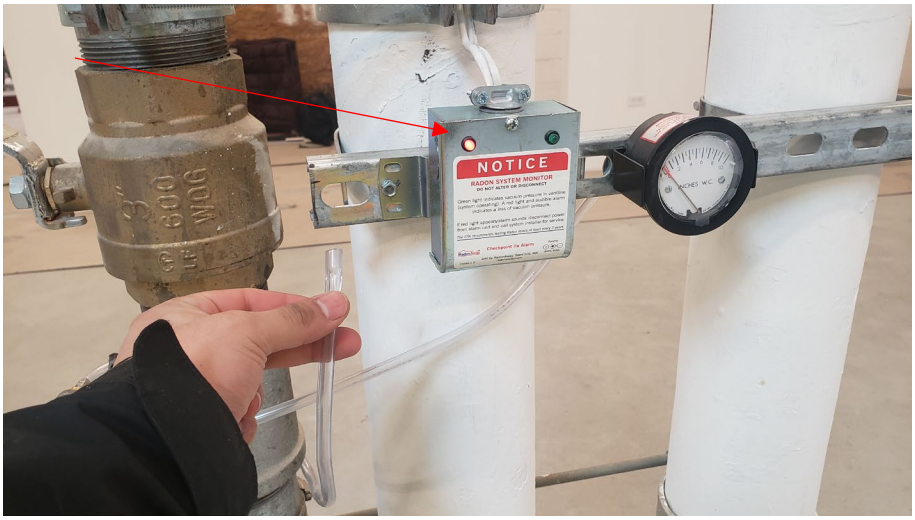
14. Typical suction pit with cast iron riser



15. Completed suction pit with vertical and horizontal piping leading to RP-3 (not in view)

16. Typical riser pipe from cellar (RP-3 and RP-4)

17. Typical visual gauge and audible alarm installation at RP-1 and RP-2 (note green light indication normal operation)



18. Verifying audible alarm state (note red light indicator) due to disconnected tubing

19. Typical alarm and gauge for RP-3 and RP-4

20. Typical sub-slab monitoring point construction

21. Typical rooftop mounted fan construction (RP-1 and RP-2)

22. RP-3 and RP-4 tying into single rooftop mounted fan (OBAR GBR76UD)

ATTACHMENT C

SSDS Operations and Maintenance Manual

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Attachment C

Operation and Maintenance Manual for Active Sub-Slab Depressurization Systems

Introduction

This Operation and Maintenance (O&M) Manual provides a description of the measures necessary to operate, monitor and maintain the mechanical components of the active sub-slab depressurization (SSD) systems installed in the commercial building located at 1124-1130 Wyckoff Avenue, Queens, New York. The building is equipped with three (3) active SSD systems, which are designed to intercept any soil vapor accumulating under the foundations and discharge it above the roofline. This document describes requirements and procedures to ensure the proper operation of the SSD systems.

System Components

The SSD systems were constructed with a series of horizontal, connected sub-slab PVC perforated piping, plumbed to non-perforated vertical risers extending through the building slab. Horizontal sub-slab piping was installed beneath a vapor barrier, within a gas permeable layer (clean ¾" crushed stone), which allows for the accumulation of any sub-slab vapors and collection into the piping network. The risers extend vertically through the building, with discharge points located on the roof at least 10 feet away from any air intake. The SSD systems utilized electrically powered fans (Fantech RN2EC fans at Systems 1 and 2, and an Obar GBR76UD fan at System 3) to create negative pressure in the sub-slab pipping network and risers. Visual pressure indicators (Dwyer Mini-Helic II) have been installed for regular inspection purposes, and audible alarms (Radonaway Checkpoint IIa) were installed to alert on-site personnel of fan failures. Nine (9) Cox-Colvin Vapor Pins were installed as permanent sub-slab monitoring points (SSMPs) for the collection of pressure measurements beneath the building slab and for sampling vapor as needed.

All elements are considered necessary to ensure that any vapors accumulating beneath the structures do not enter occupied spaces.

Copies of manufacturer operating manuals for fans, visual pressure gauges, audible alarms and permanent monitoring points are provided in Attachment A.

SSD System Effectiveness

SSD System effectiveness was evaluated by collecting pressure measurements from the SSMPs with a digital micro manometer capable of measuring pressure to a thousandth of an inch of water column (IWC). Pressure measurements less than -0.004 IWC are demonstrative of adequate negative pressure beneath the slabs. The pressure measurements that were recorded at SSMPs on February 8, 2022 are presented in the table, below:

Pressure Measurements at Permanent Sub-Slab Monitoring Points

SSMP	Recorded Pressure (IWC)
SSMP-1 (West side – North)	-0.017
SSMP-2 (West side – South)	-0.005
SSMP-3 (East side – North	-0.009
SSMP-4 (East side – South	-0.015
SSMP-5 (South-central)	-0.004
SSMP-6 (West cellar)	-0.069
SSMP-7 (West cellar)	-0.052
SSMP-8 (East cellar)	-0.033
SSMP-9 (East cellar)	-0.011

A Site map showing the locations of the SSMPs is provided in Attachment B.

Routine SSDS Operation and Maintenance

The routine operation and maintenance of the SSD systems consists of monthly visual inspections of accessible SSDS components and yearly evaluations of pressure measurements beneath the slab, as follows:

Monthly Inspections

- Inspect blower units for signs of abnormal operations, and repair or replace as needed per manufacturer's recommendations;
- Inspect discharge locations and ensure there are no blockages by leaves or snow;
- Inspect accessible portions of concrete slab for evidence of cracks and/or holes and repair as needed using a non-shrink grout;
- Record all visual gauge readings in the monthly inspection log; and,
- Verify that audible alarms are functional by cycling fans off (or disconnecting tubing to alarm) and confirming an audible tone and a red light come on.

Yearly Inspections

- Complete the monthly inspection requirements and verify that inspection records are up to date;
- Examine the building for structural or HVAC system changes, or other changes that may affect the performance of the SSD systems; and,
- Verify building depressurization by collecting pressure measurements from SSMPs utilizing a digital micro manometer capable of reading a thousandth of an inch of water column. Measurements less than or equal to -0.004" IWC are considered adequate.

A copy of the monthly inspection checklist is provided as Attachment C.

Non-routine Maintenance

Non-routine maintenance typically occurs when audible and/or visual fail-safe devices indicate the system is not working properly, the system becomes damaged, or if the building's HVAC has undergone modifications that may reduce the effectiveness of the SSD systems. The scope of non-routine maintenance will vary based on the situation. In general, the following actions will be taken as part of non-routine maintenance:

- Examine the building for structural or HVAC system changes, or other changes that may affect the performance of the SSD systems;
- Examine and address the operation of the audible alarms and/or visual gauges and the unit(s) generating sub-slab vacuum, and measure the sub-slab pressure at SSMPs via a digital manometer; and,
- Repair of adjust the SSD systems as appropriate.

Reporting Requirements

An annual SSD Systems Inspection Report (SSIR) should be produced by a qualified environmental professional to document the continued operation and efficacy of the SSD systems at the Site. The SSIR should include;

- Results of the required monthly site inspections;
- Pressure measurements from each SSMP confirming adequate building depressurization;
- The overall performance and effectiveness of the SSD systems; and,
- All applicable site management forms and other records generated for the site during the year.

List of Attachments

Attachment A SSDS Component Manufacturer Operating Manuals and Instructions

Attachment B Permanent SSMP Locations

Attachment C SSD Systems Inspection Checklist

ATTACHMENT A

SSDS Component Manufacturer Operating Manuals and Instructions

Rn 2EC Inline Radon Fan

4.5" pipe, plastic housing, 2.0" max SP, built-in control

Item #: 99927

Rn2EC Radon Fan is designed for active radon mitigation systems to employ for applications where medium suction and low flow are needed. It is a perfect choice for medium Radon levels and moderate sub-slab communication.

- Designed specifically for Active Soil Depressurization (ASD) mitigation applications
- Medium suction, low flow
- Dial your suction in with a built-in speed control
- For residential applications
- Air-tight housing - zero leakage
- UV resistant plastic housing
- UL Listed for safety and outdoor use
- HVI certified fan performance
- 5-year factory warranty

Inherently efficient and operationally stable at full and reduced speeds, Rn 2EC fan arms the radon professional with installation methods not previously practical. Integrated control system allows for “dialing in” the fan speed necessary to achieve either the required sub-slab depressurization or required system air flow rate.

Manufactured from two molded plastic pieces seamlessly joined together. It is inherently and permanently airtight ensuring no Radon gas leakage. A large watertight electrical wiring enclosure ensures electrical installation quick and simple. Fan motor is thermal overload protected with automatic reset and can be installed both indoors or outdoors. To simplify installation on a 3” or 4” PVC pipe, use FRIK 4x3 or FRIK 4x4 Installation kits.

Technical parameters

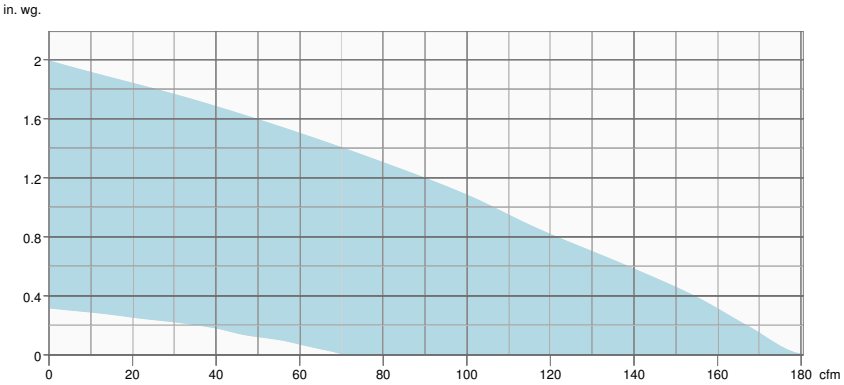
Norminal data		
Frequency	60	Hz
Input power	53	W
Input current	1.05	A
Impeller speed	2,950	r.p.m.

Protection/Classification	
Enclosure class, motor	IP54
Insulation class	B
Certificate	cULus, HVI

Dimensions and weights		
Weight	5.3	lb

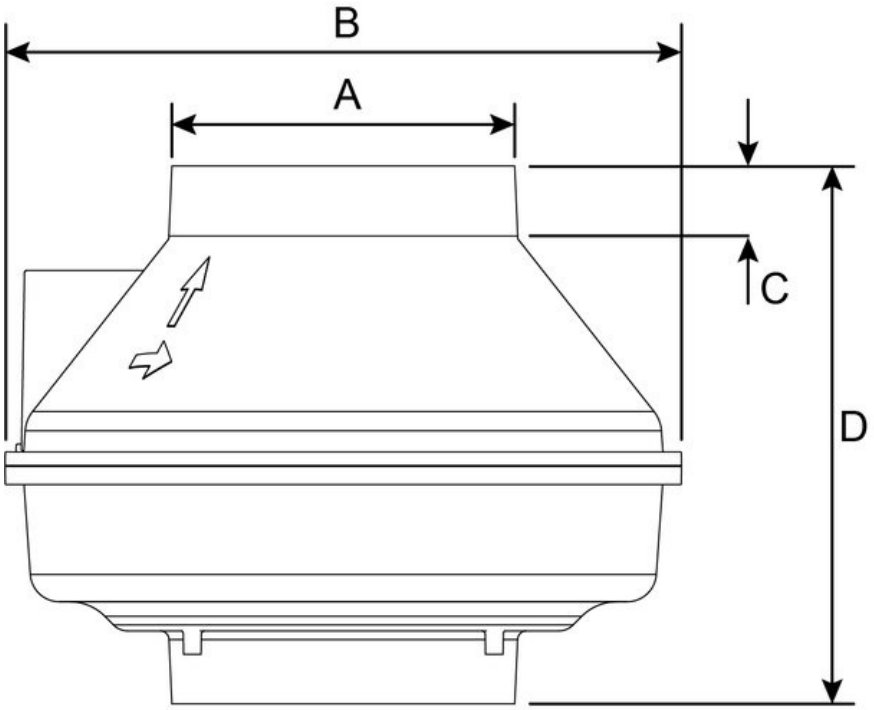
Performance

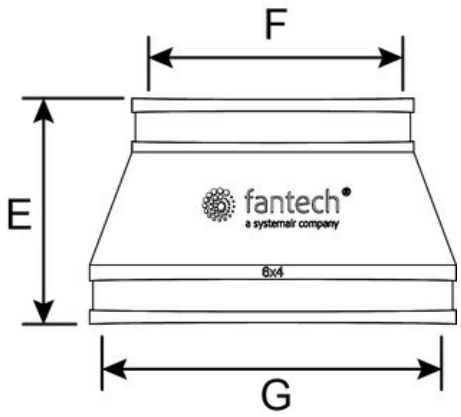
Performance curve



Hydraulic data	
Required air flow	-
Required static pressure	-
Working air flow	-
Working static pressure	-
Air density	0.075 lb/ft³
Power	-
Fan control - RPM	-
Current	-
Airflow efficiency	-
Control voltage	-
Supply voltage	-

Dimensions

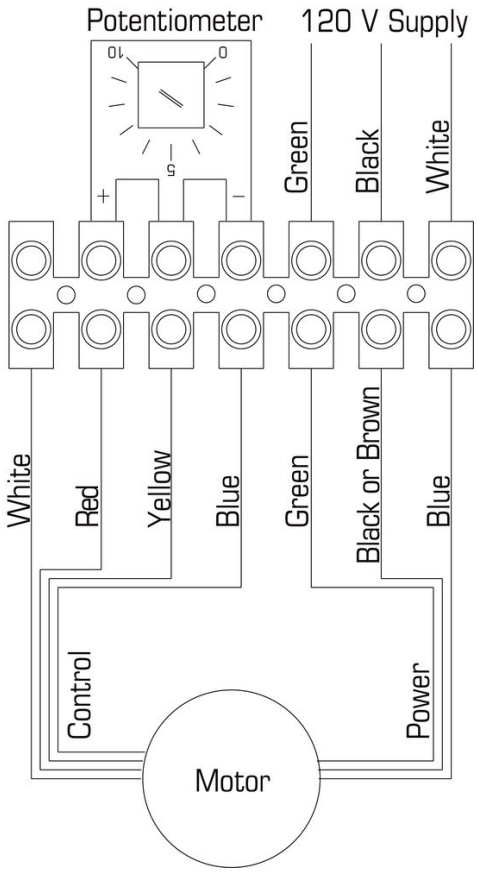




Model	A	B	C	D	E	F	G
Rn2EC	4 15/32 (114)	10 (254)	1 1/4 (32)	9 1/4 (235)	-	-	-
Rn4EC-3	5 7/8 (149)	11 1/2 (292)	1 1/4 (32)	9 1/4 (235)	4 (102)	3 1/2 (89)	6 (152)
Rn4EC-4	5 7/8 (149)	11 1/2 (292)	1 1/4 (32)	9 1/4 (235)	4 (102)	4 1/2 (114)	6 (152)

Dimensions in inches (mm).

Wiring


Potentiometer
120 V Supply
10
0
5
+
–
Green
Black
White
White
Red
Yellow
Blue
Green
Black or Brown
Blue
Control
Power
Motor

Accessories

- FRIK 4x3 Rn Installation Kit (95904)
- LDVI® 4x3 Bulk Pack, 54 pcs (95908)
- FRIK 4x4 Rn Installation Kit (95905)
- LDVI® 4x4 Bulk Pack, 36 pcs (95909)

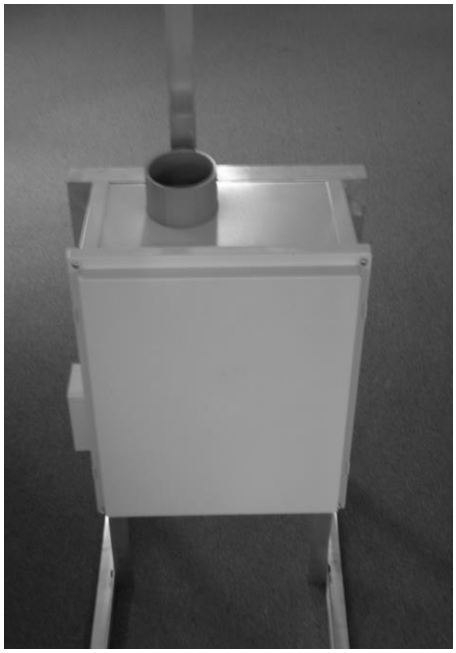
Documents

- E1956_RN2EC_SELL_SHEET.PDF
- 142001 Rn2EC-Rn4-EC OIPM EN FR.PDF

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	**$395.00**	**$450.00**

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

Ratings:

Ingress Protection (EN 60529): 66/67

Electrical insulation: Totally insulated

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

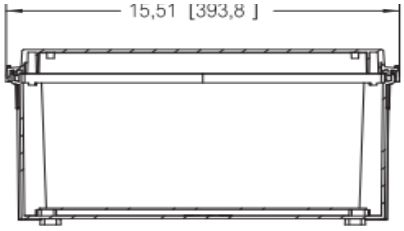
UV resistance: UL 508

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

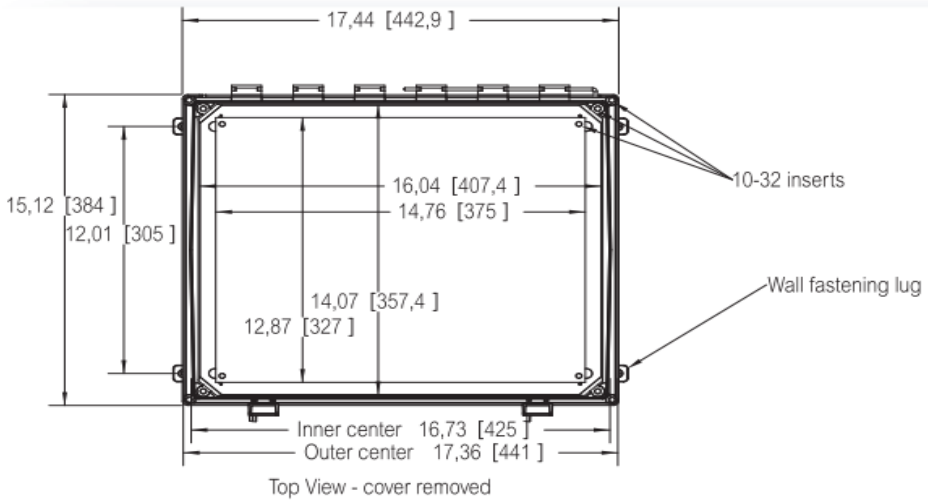
Glow Wire Test (IEC 695-2-1) °C: 960

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

Certificates: Underwriters Laboratories



Screw cover



Top View - cover removed

INSTALLATION & OPERATING INSTRUCTIONS
Instruction P/N IN015 Rev E
FOR *CHECKPOINT IIa*™ P/N 28001-2 & 28001-3
RADON SYSTEM ALARM

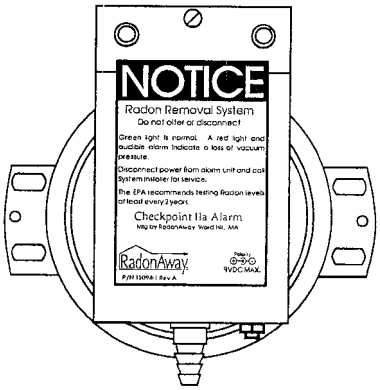
INSTALLATION INSTRUCTIONS
(WALL MOUNTING)

Select a suitable wall location near a vertical section of the suction pipe. The unit should be mounted about four or five feet above the floor and as close to the suction pipe as possible. Keep in mind that with the plug-in transformer provided, the unit must also be within six feet of a 120V receptacle. **NOTE: The Checkpoint IIa is calibrated for vertical mounting, horizontal mounting will affect switchpoint calibration.**

Drill two ¼" holes 4" apart horizontally where the unit is to be mounted.

Install the two ¼" wall anchors provided.

Hang the CHECKPOINT IIa from the two mouting holes located on the mounting bracket. Tighten the mounting screws so the unit fits snugly and securely against the wall.



Drill a 5/16" hole into the side of the vent pipe about 6" higher than the top of the unit.

Insert the vinyl tubing provided about 1" inside the suction pipe.

Cut a suitable length of vinyl tubing and attach it to the pressure switch connector on the CHECKPOINT IIa.

CALIBRATION AND OPERATION.

The CHECKPOINT IIa units are calibrated and sealed at the factory to alarm when the vacuum pressure falls below the factory setting and should not normally require field calibration. Factory Settings are:
28001-2 -.25" WC Vacuum
28001-3 -.10" WC Vacuum

To Verify Operation:

With the exhaust fan off or the pressure tubing disconnected and the CHECKPOINT IIa plugged in, both the red indicator light and the audible alarm should be on.

Turn the fan system on or connect the pressure tubing to the fan piping. The red light and the audible alarm should go off. The green light should come on.

Now turn the fan off. The red light and audible alarm should come on in about two or three seconds and the green light should go out.

WARRANTY INFORMATION

Subject to applicable consumer protection legislation, RadonAway warrants that the CHECKPOINT IIa will be free from defective material and workmanship for a period of (1) year from the date of purchase. Warranty is contingent on installation in accordance with the instructions provided. This warranty does not apply where repairs or alterations have been made or attempted by others; or the unit has been abused or misused. Warranty does not include damage in shipment unless the damage is due to the negligence of RadonAway. All other warranties, expressed or written, are not valid. To make a claim under these limited warranties, you must return the defective item to RadonAway with a copy of the purchase receipt. RadonAway is not responsible for installation or removal cost associated with this warranty. In no case is RadonAway liable beyond the repair or replacement of the defective product FOB RadonAway.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THERE IS NO WARRANTY OF MERCHANTIBILITY. ALL OTHER WARRANTIES, EXPRESSED OR WRITTEN, ARE NOT VALID.

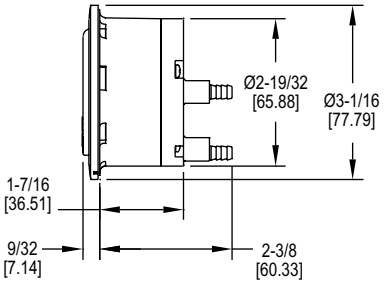
For service under these warranties, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. **No returns can be accepted without an RMA.** If factory return is required, the customer assumes all shipping costs to and from factory.

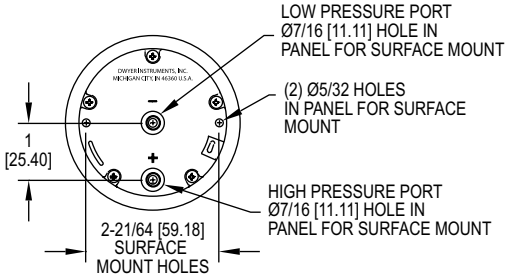
Manufactured by:
RadonAway
Ward Hill, MA
(978)-521-3703

SERIES 2-5000

MINIHELIC® II DIFFERENTIAL PRESSURE GAGES

Combining High Accuracy, Compactness, Dependability, and Low Cost





Combining clean design, small size and low cost with enough accuracy for all but the most demanding applications our **SERIES 2-5000** Minihelic® II gage offers the latest in design features for a dial type differential pressure gage. It is our most compact gage but is easy to read and can safely operate at total pressures up to 30 psig.

FEATURES/BENEFITS

- Removable lens and rear-housing provides easy, cost-effective servicing
- Accuracy and value provides an excellent solution for OEM and user applications
- Durable housing materials make it well-suited for rough environments and total high pressure

APPLICATIONS

- Room positive pressure sensing
- Cabinet air-purging
- Medical respiratory equipment
- Air samplers
- Electronic air cooling systems
- Laminar flow hoods
- Local indication on filter status
- Face velocity on fume hood
- Duct pressures

SPECIFICATIONS

Service: Air and compatible gases.
Wetted Materials: Consult factory.
Housing: Glass filled nylon; polycarbonate lens.
Accuracy: ±5% of FS at 70°F (21.1°C).
Pressure Limits: 30 psig (2.067 bar) continuous to either pressure connection.
Temperature Limits: 20 to 120°F (-6.67 to 48.9°C).
Size: 2-1/16″ (52.39 mm) diameter dial face.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Process Connections: Barbed, for 3/16″ ID tubing (standard); 1/8″ male NPT (optional).
Weight: 6 oz (170.1 g).
Agency Approvals: Meets the technical requirements of EU Directive 2011/65/EU (RoHS II).

Caution: For use only with air or compatible non-corrosive gases.

Dwyer

SERIES 2-5000

MINIHELIC® II DIFFERENTIAL PRESSURE GAGES

Combining High Accuracy, Compactness, Dependability, and Low Cost

Housing is molded from strong mineral and glass filled nylon.

Pointer stops of molded rubber prevent pointer over-travel without damage.

Full view lens is removable and molded of acrylic.

Aluminum scale litho-printed black on white, enhances readability.

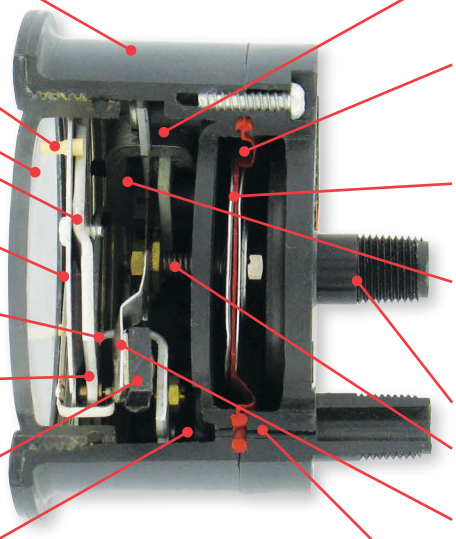
Red tipped aluminum pointer, rigidly mounted to helix is easy to see.

Wishbone assembly provides mounting for helix, helix bearings, and pointer shaft.

Jewel bearings provide virtually friction-free helix motion.

Helix is free to rotate in jewel bearings. It aligns with magnetic field of magnet to transmit pressure indications to pointer.

Zero adjustment screw, located behind the removable lens, eliminates tampering.



Range spring calibration clamp fixes live length of spring for proper gage calibration and is factory set and sealed.

Silicone rubber diaphragm allows accurate response to a broad range of temperatures and at extremely low pressure. Incorporates blow out area for overpressure protection.

Diaphragm support plates of lightweight aluminum on each side of the diaphragm minimize position or attitude sensitivity and help define pressure area.

Flat leaf range spring reacts to pressure on the diaphragm. Live length is adjustable for calibration. Small amplitude of motion minimizes inaccuracies and assures long life.

Low pressure tap connects to rear chamber.

Coil spring link provides a resilient connection between the diaphragm and the range spring.

Ceramic magnet mounted on a molded bracket at the end of the range spring rotates the helix without direct mechanical linkage.

High pressure tap connects with the front chamber through passageway in the plastic case and a sealing ring molded into the edge of the diaphragm.

MODEL CHART

Model	Range, Inches of Water	Model	Range, MM of Water
2-5000-0	0-0.5	**2-5000-25MM**	0-25
2-5001	0-1.0	**2-5000-50MM**	0-50
2-5002	0-2.0	**2-5000-100MM**	0-100
2-5003	0-3.0		
2-5005	0-5.0	**Model**	**Range, Pascals**
2-5010	0-10	**2-5000-125PA**	0-125
2-5020	0-20	**2-5000-250PA**	0-250
2-5040	0-40	**2-5000-500PA**	0-500
2-5060	0-60		
2-5100	0-100	**Model**	**Range, kPa**
		2-5000-1KPA	0-1
Model	**Range, PSI**	**2-5000-3KPA**	0-3
2-5205	0-5		

OPTIONS

To order add suffix:	Description
-NPT	1/8″ male NPT connections
Example: 2-5001-NPT	
-BB	Bottom barbed surface mount
Example: 2-5001-BB	
-NIST	NIST traceable calibration certificate
Example: 2-5001-NIST	
-FC	Factory calibration certificate
Example: 2-5001-FC	

ACCESSORIES

Model	Description
A-302F-A	303 SS static pressure tip with mounting flange; for 3/16″ ID rubber or plastic tubing; 4″ insertion depth; includes mounting screws
A-434	Portable kit
A-489	4″ straight static pressure tip with flange
A-497	Surface mounting bracket
A-609	Air filter kit
A-480	Plastic static pressure tip

SURFACE MOUNTING

Optional surface mounting with back mounting plate allows for quick installation to any surface. Process connections are barbed and point downwards. Add -BB for bottom barbed surface mount option.

PANEL MOUNTING

Mounting hardware is supplied with the Minihelic® II gage for panel mounting through a single hole, 2-5/8″ (67 mm) in diameter. Panel thickness up to 1/2″ (13 mm) can be accommodated with the hardware supplied. If necessary, surface mounting of the gage can be accomplished by means of two 4-40 screws into the tapped mounting bracket stud holes in the rear of the gage. Surface mounting requires clearance holes in the panel for the two pressure taps.

Process Tubing Options: See page 489 (Gage Tubing Accessories)

Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated March 16, 2018

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole **must** be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;
- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.

Figure 1. Assembled VAPOR PIN®

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.

4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.

6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.

Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).

Figure 3. Installed VAPOR PIN®

7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).

Figure 4. Secure Cover Installed

8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.

9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the

Nylaflow tubing (Figure 5). Put the Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.

Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.

Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.

2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.

Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, **STAINLESS – ½ hour, BRASS 8 minutes**

3) Replacement parts and supplies are available online.

Standard Operating Procedure Installation of the Vapor Pin® Insert

June 2020

Scope:

This standard operating procedure describes the installation the Vapor Pin® Insert (Figure 1).

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the Vapor Pin® Insert. The Vapor Pin® Insert is used to facilitate the collection of soil gas samples and pressure measurements beneath engineered vapor intrusion barriers (e.g., Geo-Seal®), or vapor mitigation coatings (e.g., Retro-Coat™).

Equipment Needed:

- Vapor Pin® Insert;
- Vapor Pin® Insert Cap;
- Hacksaw (optional);
- Power drill and small diameter bits (optional);
- Threaded rod (1/2" x 13); and
- Dead blow hammer.

Installation Procedure (New Construction):

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® Insert.

3) Pierce the barrier with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

4) Dry fit the Vapor Pin® Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

5) Assemble the Vapor Pin® Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® Secure Cover meets uniformly with the floor.

6) Marry the barrier to the Insert per the manufacture's specification prior to pouring the concrete slab.

7) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® product in the Insert.

Installation Procedure (Exisiting Construction:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Prior to installation in an existing slab, a large diameter hole must be cored through the slab to either expose the barrier, or provide access to the base beneath the slab prior to the application of a vapor mitigation coating. Contact the vendor of the barrier or coating about the desired diameter of the hole, the procedures used to expose the seal, and the methods and materials used to marry the seal or coating to the Insert prior to proceeding.

3) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® Insert.

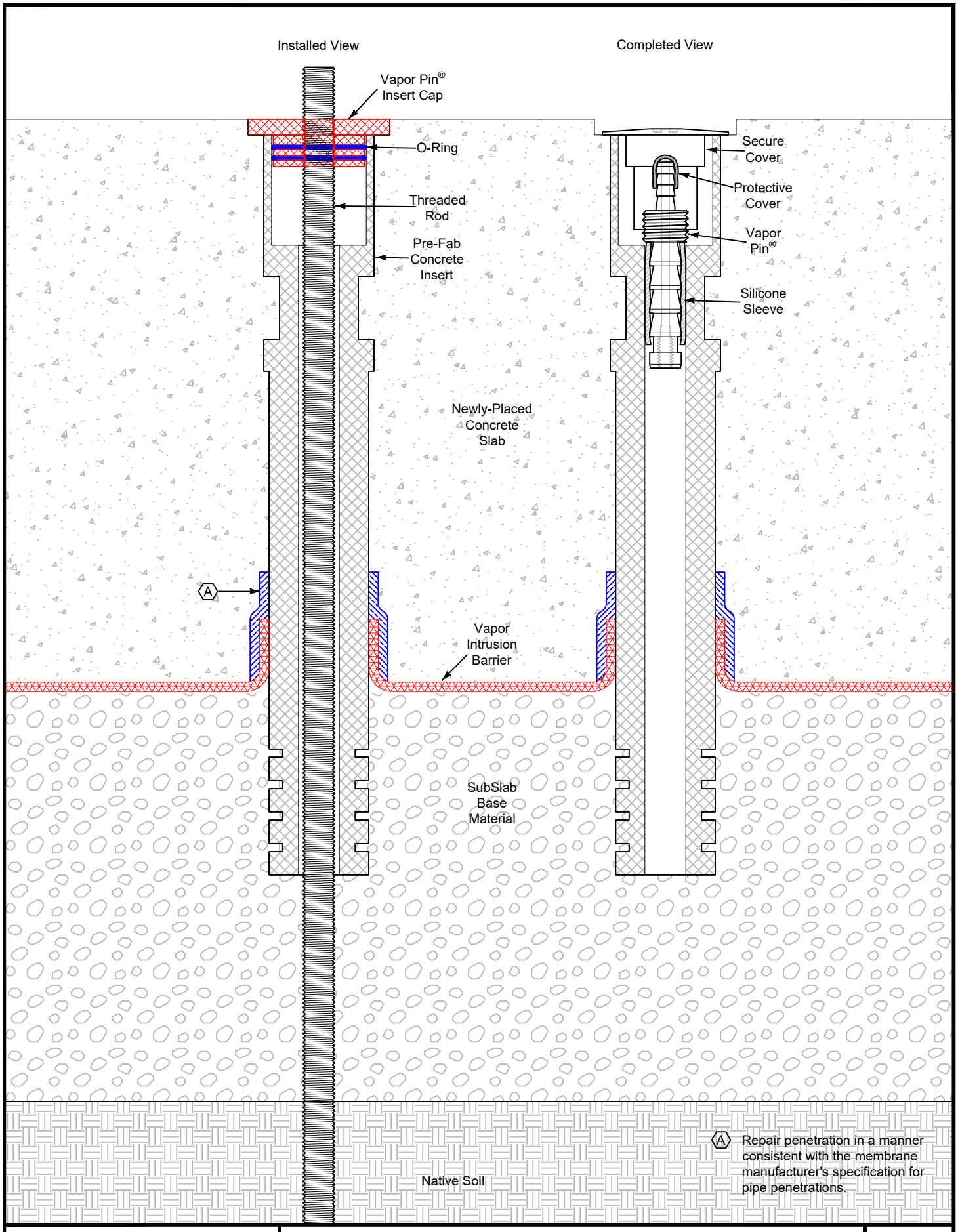
4) Pierce the barrier (if applacble) with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

5) Dry fit the Vapor Pin® Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

6) Assemble the Vapor Pin® Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® Secure Cover meets uniformly with the floor.

7) If the Insert is used in conjunction with a vapor intrusion barrier, marry the barrier to the Insert per the barrier manufacture's specification prior to pouring the concrete slab.

8) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® product in the Insert.



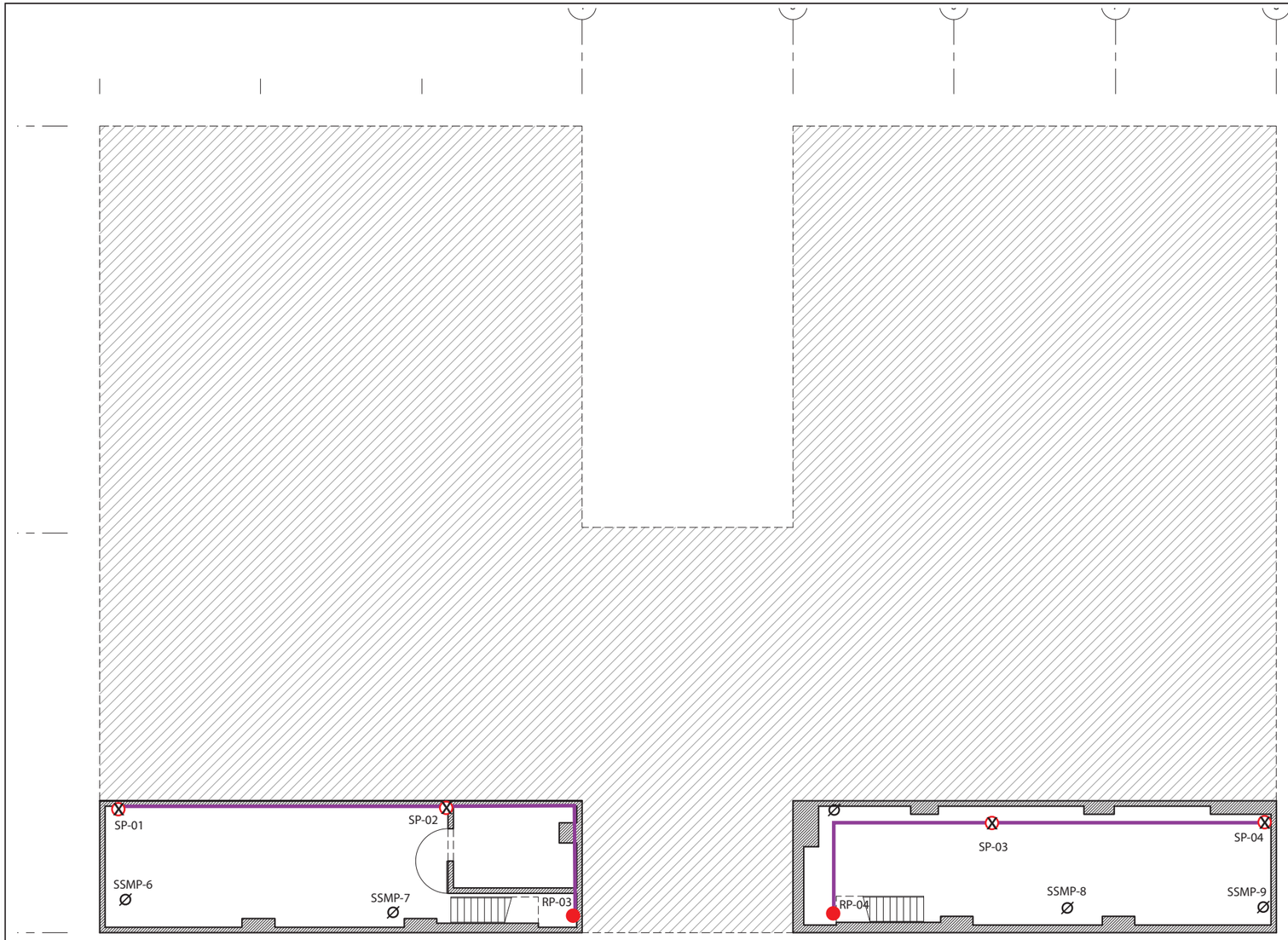
VaporPin®

Vapor Pin® Insert with Cap,
Vapor Pin Enterprises, Inc.

Figure
1

ATTACHMENT B

Permanent SSMP Locations



Notes:

1. Visible expansion joints and slab cracks or openings greater than 1/16" throughout the area to be depressurized were properly sealed with Sikasil®-728 NS sealant.
2. Sump pumps and utility enclosures throughout the area to be depressurized were evaluated by a qualified environmental consultant and the SSDS installer to determine proper sealing method.
3. Six (6) suction points (SPs, 3" Ø x 12", SP-01 to SP-06) were constructed at the indicated locations, following suction pit detail.
4. Piping materials above and below ground comply with materials specified in NYC DOB Mechanical Code, Section 512, latest edition. All exterior pipes are Schedule 40 PVC and all interior pipes are cast iron, unless otherwise noted.
5. All PVC joints were sealed with plumber's cement (or similar product) applied according to the manufacturer's specifications. Cast iron no-hub couplers at all cast iron pipe unions.
6. Horizontal piping is pitched down from the riser pipe towards suction points at 1/8" per foot (1% slope) to facilitate condensation drainage.
7. Appropriate fire stop details were installed at any location in which piping penetrates a fire rated wall.
8. Piping inside and outside the building is mounted to the nearest building column, beam or supporting structure with hangers, clamps, or brackets in accordance with all applicable code and/or manufacturer's recommendations.
9. All overhead piping maintains a minimum distance of 6'-8" to floor.
10. Discharge point (DP) extends a minimum of 20" above the roof. DPs are at least 10' from other buildings, HVAC intakes, windows or doors.
11. A powered fan has been installed at each riser pipe, following construction details, by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.
12. Sub-slab monitoring points (SSMPs) were installed for field testing and monitoring purposes in accordance with design document specification. Penetrations through vapor barrier and slab were sealed in accordance with manufacturer specifications. Adequate negative pressure at the SSMPs are defined as equal to or less than -0.004 in. w.c.
13. U-manometers or equivalent pressure gauges were installed at each vertical pipe connected to a SP at visible locations as indicators of negative pressure.
14. A warning alarm (voice dialer system, flashing light indicator, or approved equal) was installed by a licensed electrical contractor to indicate fan failure.
15. A 4" butterfly valve (or approved equal, one per SP) was installed for system balancing purposes. Butterfly valve was installed at an accessible location along the pipe connecting the SP to the main overhead piping connecting multiple SPs.
16. All U-manometers, visible SSDS piping in the exterior and interior portions of the building, and powered fans are clearly labeled as "Sub-Slab Venting System" by means of stickers, stencil or other approved marking directly on each item.

0 10 20
SCALE IN FEET
(APPROXIMATELY)

Legend:

- ceiling pipe (3" cast iron)
- vertical riser (3" cast iron)
- suction point
- location of sub-slab monitoring point

Base map provided by Cody & Wyckoff - Basement Level - Existing Floor Plan dated 6/17/20.
All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

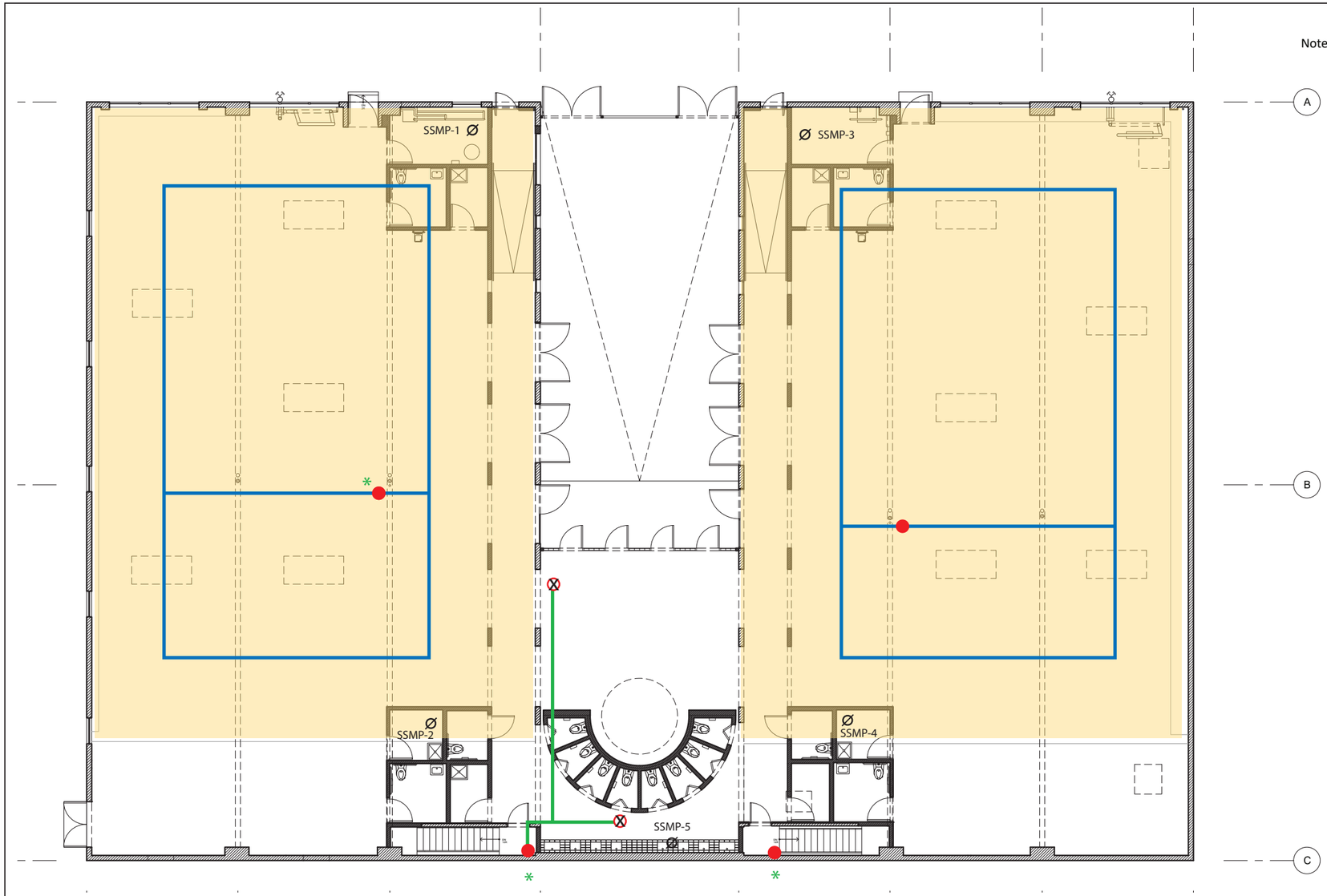
As-Built
Sub-Slab Depressurization System Layout - Basement and Former UST Area

11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30

Scale as shown

June 2022 | Attachment B1



Notes:

1. Visible expansion joints and slab cracks or openings greater than 1/16" throughout the area to be depressurized were properly sealed with Sikasil®-728 NS sealant.
2. Sump pumps and utility enclosures throughout the area to be depressurized were evaluated by a qualified environmental consultant and the SSDS installer to determine proper sealing method.
3. Six (6) suction points (SPs, 3" Ø x 12", SP-01 to SP-06) were constructed at the indicated locations, following suction pit detail.
4. Piping materials above and below ground comply with materials specified in NYC DOB Mechanical Code, Section 512, latest edition. All exterior pipes are Schedule 40 PVC and all interior pipes are cast iron, unless otherwise noted.
5. All PVC joints were sealed with plumber's cement (or similar product) applied according to the manufacturer's specifications. Cast iron no-hub couplers at all cast iron pipe unions.
6. Horizontal piping is pitched down from the riser pipe towards suction points at 1/8" per foot (1% slope) to facilitate condensation drainage.
7. Appropriate fire stop details were installed at any location in which piping penetrates a fire rated wall.
8. Piping inside and outside the building is mounted to the nearest building column, beam or supporting structure with hangers, clamps, or brackets in accordance with all applicable code and/or manufacturer's recommendations.
9. All overhead piping maintains a minimum distance of 6'-8" to floor.
10. Discharge point (DP) extends a minimum of 20" above the roof. DPs are at least 10' from other buildings, HVAC intakes, windows or doors.
11. A powered fan has been installed at each riser pipe, following construction details, by a licensed electrical contractor in accordance with NYC DOB construction code and any other applicable code and regulations utilizing a hard-wired electrical connection with a dedicated power switch and breaker.
12. Sub-slab monitoring points (SSMPs) were installed for field testing and monitoring purposes in accordance with design document specification. Penetrations through vapor barrier and slab were sealed in accordance with manufacturer specifications. Adequate negative pressure at the SSMPs are defined as equal to or less than -0.004 in. w.c.
13. U-manometers or equivalent pressure gauges were installed at each vertical pipe connected to a SP at visible locations as indicators of negative pressure.
14. A warning alarm (voice dialer system, flashing light indicator, or approved equal) was installed by a licensed electrical contractor to indicate fan failure.
15. A 4" butterfly valve (or approved equal, one per SP) was installed for system balancing purposes. Butterfly valve was installed at an accessible location along the pipe connecting the SP to the main overhead piping connecting multiple SPs.
16. All U-manometers, visible SSDS piping in the exterior and interior portions of the building, and powered fans are clearly labeled as "Sub-Slab Venting System" by means of stickers, stencil or other approved marking directly on each item.

0 10 20
SCALE IN FEET
(APPROXIMATELY)

Legend:

- Schedule 40 perforated PVC piping (4")
- Schedule 40 non-perforated PVC piping (3")
- vertical riser (3" cast iron)
- access panel to be provided for monitoring purposes
- Ø proposed location of sub-slab monitoring point
- suction point
- extent of 6" continuous gravel below slab

Base map provided by Cody & Wyckoff - Basement Level - Existing Floor Plan dated 6/17/20.
All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

As-Built Sub-Slab Depressurization System Layout - First Floor

11-24 Wyckoff Avenue
Borough of Queens, New York

File: PQ18052.30

Scale as shown

June 2022 | Attachment B2

ATTACHMENT C

SSD Systems Inspection Checklist

Monthly SSDS Inspection Form

1124-1130 Wyckoff Avenue, Queens, Queens County, New York

GALLAGHER BASSETT | TECHNICAL SERVICES

Instructions: Month:_____ Year: _____

1) This form is to be maintained on-site and made available to site owner and Gallagher Bassett Technical Services (GBTS) personnel.

2) Inspect the SSDS every month. Record mini-helic gauge readings.

3) Readings should be positive - zero-readings indicate fan failure

4) If you have questions on how to fill out the form please contact GBTS at (845) 452-1658.

5) If any visual gauges read zero, or if any audible alarm is sounding, contact GBTS within 48 hours.

System #	Inspector Name	Inspector Signature	SSDS units (fan/blower) operating? (Yes or No)	SSDS audible and/or visual fail-safe system operating? (Yes or No)		Visual Gauge Readings (inches w.c.)		Additional Notes(fan noise, riser damage, etc.)
1				RP-1		RP-1		
2				RP-2		RP-2		
3				RP-3	RP-4	RP-3	RP-4	