CITY OF Fremont

City Manager's Office
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RECEIVED
By Alameda County Environmental Health 2:57 pm, Jun 22, 2016

June 21, 2016

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502
Attention: Mr. Mark Detterman, PG, CEG

Transmittal
Updated Vapor Mitigation System Design Drawings and Specifications
39155 and 39183 State Street
Fremont, California

Dear Mr. Detterman:

Submitted herewith for your review is the *Updated Vapor Mitigation System Design Drawings and Specifications, State Street Center, Fremont, California* prepared by PES Environmental, Inc.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached report are true and correct to the best of my knowledge.

Sincerely,

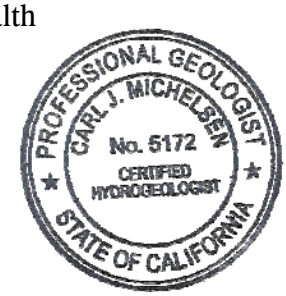
Clifford Nguyen
Urban Initiatives Manager

PES Environmental, Inc.
Engineering & Environmental Services

MEMORANDUM

TO: Mark Detterman, P.G., CEG
Dilan Roe, P.E.
Alameda County Department of Environmental Health

FROM: Scott Morrison, P.E.
Carl Michelsen, P.G., C.HG.
PES Environmental, Inc.



DATE: June 15, 2016

SUBJECT: Updated Vapor Mitigation System Design Drawings and Specifications
State Street Center
Fremont, California

PROJECT NO.: 220.003.03.002

This memorandum has been prepared by PES Environmental, Inc. (PES) on behalf of Fremont State Street Center, LLC (FSSC) to provide an update to the Vapor Mitigation System Design Drawings and Specifications included in Appendix B of the Vapor Mitigation System Basis of Design Report (VMS Report).[1]

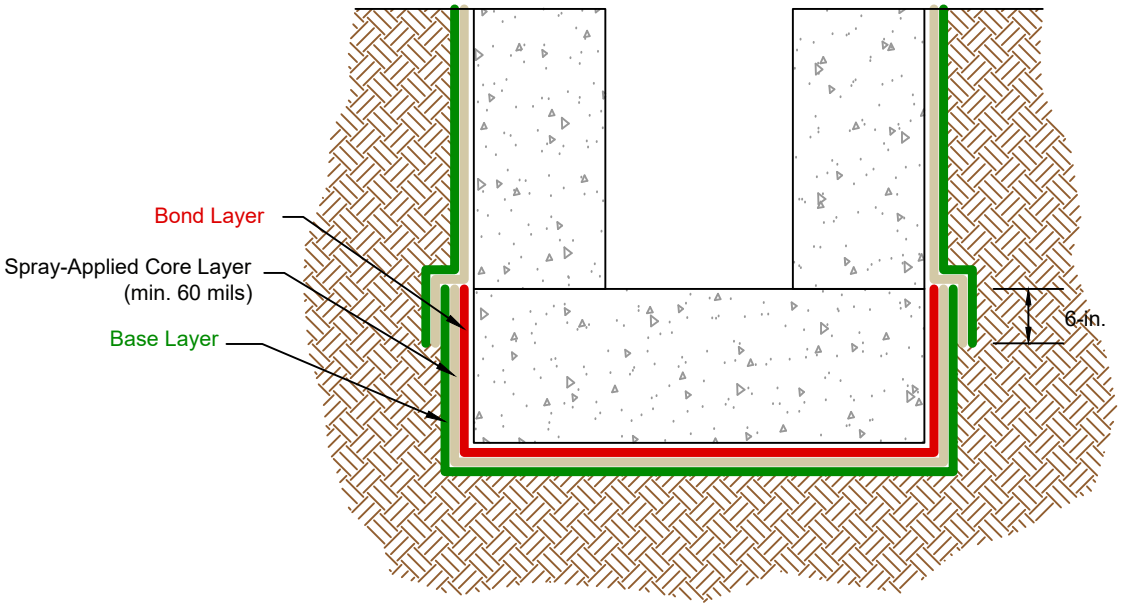
Attached is: (1) an elevator pit detail for Building A that was not included previously in the VMS Report, and (2) updated Vapor Mitigation System (VMS) design drawings for the on-grade townhomes that have been developed based on the more recent building design drawings. The VMS drawings for the on-grade townhomes have been revised based on the new building layouts and now include using 3-inch diameter Schedule 40 PVC pipe inside the building and 3-inch diameter galvanized steel pipe at the rooftop (instead of 4-inch diameter cast iron pipe as specified in the VMS Report) for the vent risers.

Attachment 1 – Geo-Seal Elevator Pit Detail
Attachment 2 – Vapor Mitigation System (VMS) State Street Center On-Grade Townhomes (June 15, 2016 Plan Set)

[1] PES Environmental, Inc., 2016. *Vapor Mitigation System Basis of Design Report, State Street Center, Fremont, California*. March 24

ATTACHMENT 1

GEO-SEAL ELEVATOR PIT DETAIL



Explanation

- Bond Layer = Geo-Seal BOND
- Spray-Applied Core Layer = Geo-Seal CORE
- Base Layer = Geo-Seal BASE

PES Environmental, Inc.
Engineering & Environmental Services

Geo-Seal Elevator Pit Detail
State Street Center
Fremont, California

PLATE
1

220.003.03.002	22000303002_VB_Det1	SM	6/16
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

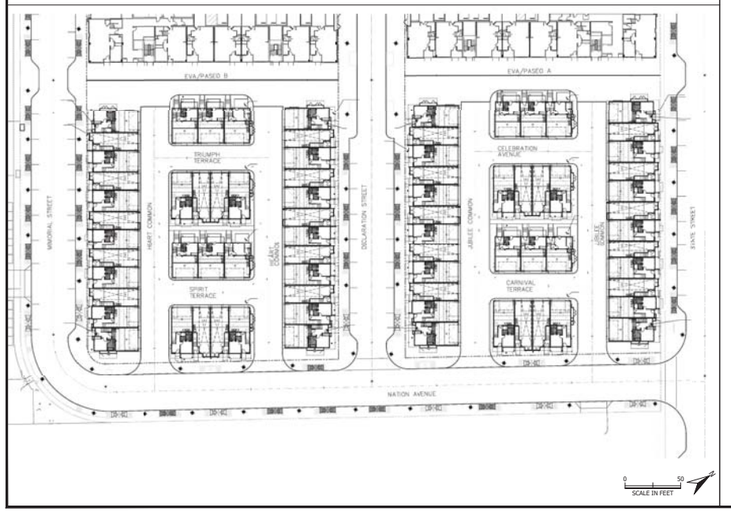
ATTACHMENT 2

VAPOR MITIGATION SYSTEM (VMS) STATE STREET CENTER ON-GRADE TOWNHOMES (JUNE 15, 2016 PLAN SET)

VAPOR MITIGATION SYSTEM (VMS)
STATE STREET CENTER
ON-GRADE TOWNHOMES
FREMONT, CALIFORNIA

Site Location

Site Plan



Project Information

Prepared For:
Fremont State Street Center, LLC
3000 Executive Parkway, Suite 450
San Ramon, California 94583

Prepared By:
PES Environmental, Inc
1682 Novato Boulevard, Suite 100
Novato, California 94947

Architect:
KTGY Group, Inc.
580 Second Street, Suite 200
Oakland, California 94607

Sheet Index

PES Environmental, Inc.
Engineering & Environmental Services

A Project for:
STATE STREET CENTER
ON-GRADE TOWNHOMES
FREMONT, CALIFORNIA

Client:
Fremont State Street Center, LLC
3000 Executive Parkway, Suite 450
San Ramon, California, 94583

Revisions:

No.	Description	Date
	VMS Report Update	6/15/2016

Project No.:	220.003.03.002
Drawn By:	BP
Reviewed By:	SM
Scale:	AS NOTED
Date:	5/27/2016
Filename:	22000303002_VB_r1_1-6

Seal:
REGISTERED PROFESSIONAL ENGINEER
SCOTT M. MORRISON
C 64748
Exp. 6-30-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:
TITLE SHEET

Sheet #:
VM-1.0

GENERAL NOTES & SPECIFICATIONS

I. GENERAL NOTES

A. Applicability

1. The subslab vapor mitigation system details presented in these plans and specifications shall be utilized in the construction of buildings as shown on this plan set.
2. The owner of this project is Fremont State Street Center, LLC (FSSC).
3. The Project Engineer for construction of this vapor mitigation system is PES Environmental, Inc. (PES).
4. The regulatory agency for this project is Alameda County Environmental Health (ACEH).

B. Quality Assurance

1. The Vapor Barrier Contractor/Applicator shall be trained and approved by the Vapor Barrier Manufacturer (e.g., Land Science Technologies for Geo-Seal). The Contractor/Applicator shall provide the Project Engineer with a letter from the manufacturer that: (a) confirms that the Contractor/Applicator is certified by the manufacturer for installation of the product; and (b) warranties its product to be free of defects when that product is installed by the Contractor/Applicator.
2. A pre-installation conference shall be held at the project site prior to the installation of the vent system and application of the vapor barrier to assure proper subgrade, conditions and installation procedures. Construction of slab depressions, as applicable, shall be discussed to ensure that the vent piping and vapor barrier will be protected in these areas. The Vapor Barrier Contractor/Applicator, site superintendent for the General Contractor, the foundation subcontractor, and the Project Engineer shall be present at this meeting.
3. The installation of the vent system and vapor barrier shall be observed by the Project Engineer, or a designated representative. Inspections shall typically be performed prior to, during, and subsequent to the application of the system.
4. All surfaces to receive the vapor barrier shall be inspected and approved by the Contractor/Applicator and the Project Engineer prior to commencing work.
5. Materials (excluding bulk aggregates) are to be delivered to the project site in their original unbroken packages bearing the manufacturers label showing brand, weight, volume and batch number, where applicable. Materials are to be stored at the project site in strict compliance with the manufacturer's instructions. Do not allow materials to freeze in containers.

C. Submittals

1. The Vapor Barrier Contractor/Applicator shall submit any updates or revisions to the manufacturers product data and recommended installation procedures to the Project Engineer for review and approval at least two weeks prior to the construction of the vapor barrier.
2. The Vapor Barrier Contractor/Applicator and the foundation subcontractor shall submit representative samples and manufacturer's cut-sheets of the following to the Project Engineer for approval:
   - Base layer beneath the vapor barrier membrane;
   - Vapor barrier membrane material;
   - Protection layer below and above the vapor barrier membrane; and
   - Low profile vent piping.
3. At the completion of the installation, the Contractor/Applicator shall submit a letter to the Owner and Project Engineer certifying that installation was completed in accordance with the project plans and specifications as well as the procedures recommended by the manufacturer.

D. Job Conditions

1. All plumbing, electrical, mechanical and structural items that are located beneath, or that pass through (if any), the vapor barrier membrane shall be positively secured in their proper positions and appropriately protected prior to application of the membrane.
2. It shall be the responsibility of the General Contractor to prepare the subgrade to the desired condition and appropriate elevation prior to the arrival of the Vapor Barrier Contractor/Applicator.
3. The areas adjacent to the vapor barrier are to be protected by the Vapor Barrier Contractor/Applicator during the installation process. Where necessary, masking or other protective measures shall be applied to prevent staining of surfaces beyond the limits of the application.
4. Work is to be performed only when existing and forecasted weather conditions are within the manufacturers recommendations for the material and product used. The application of the vapor barrier membrane compounds shall be suspended if the ambient temperature falls below 45°F, or during periods of precipitation. Allow longer curing time in high humidity conditions. Take precautions not to overspray into unprotected areas during windy conditions.
5. Minimum clearance required for application of this product is 2 feet.
6. The vapor barrier membrane shall be installed before placement of reinforcing steel. If reinforcing steel is present at the time of application, all exposed reinforcement shall be masked prior to membrane application to ensure that the steel surface remains free of the product.

II. PASSIVE VENT SYSTEM

The subslab vent system shall be installed beneath the vapor barrier and concrete floor slab of the buildings shown on Sheet VM-2.0 of this plan set. The passive vent system shall consist of perforated horizontal vent lines installed in a gravel layer under the vapor barrier and vent risers. General specifications for this system are as follows:

A. General

1. Subslab horizontal vent lines shall be placed such that no portion of the foundation is more than 25 feet from the vent lines.
2. Where solid piping transitions through building footings, the penetration shall be accomplished in compliance with the International Building Code and with the approval of the Project Structural Engineer and the Building Official.
3. Vent risers may be located within the building walls, furred pilasters, or shall be similarly protected from physical damage. Vent risers shall not be located within fire walls.

B. Materials

1. The gravel layer shall be ¾-inch or less with rounded edges and shall contain minimal fines. The gravel layer must be compacted and rolled flat.
2. Subslab horizontal vent lines (low profile) shall be Vapor-Vent manufactured by Land Science Technologies, or an equivalent product approved by the Project Engineer. Connector fittings that connect the low profile vent lines to solid vent piping shall be from the same manufacturer as the low profile vent lines.
3. Solid subslab vent piping shall be 3-inch diameter Sch. 40 PVC. Subslab vent piping shall transition to 3-inch diameter vent risers within the building interior.

C. Installation

1. Low profile vent piping shall be placed in conjunction with the gravel venting layer. Install the low profile vent piping at the top of the gravel layer.
2. At points of intersection, cut away vent piping geotextile to produce rectangular flaps. Interlock exposed dimple boards and fold flaps of geotextile in a manner so that the dimple boards are covered completely. Secure geotextile folds with fiber reinforced tape so that the geotextile is completely impermeable to the gravel.
3. Subgrade low profile vent pipes that cross interior footings shall be connected to solid vent pipe embedded in the concrete slab footings/grade beams when poured. Alternatively, and only if necessary and with approval of the Project Engineer, existing concrete footings can be cored and solid venting pipe no less than 3-inch diameter may be placed through the footing.
4. Subgrade low profile vent pipes shall be connected to the solid vent pipe using manufacturer end outlets. Solid vent pipe shall not be less than 3-inch diameter and shall be constructed of materials that comply with the Uniform Plumbing and International Mechanical Codes. All joints shall be tightly sealed.
5. Where it passes through concrete footing, solid vent pipe shall be continuously wrapped with foam pipe wrap tape in accordance with the Uniform Plumbing Code.
6. Vent risers shall be constructed using 3-inch diameter pipe approved by the Project Engineer and Building Official in compliance with the Uniform Plumbing Code. Risers shall terminate at an approved outlet in accordance with this plan set and the Uniform Plumbing Code.
7. Horizontal vent riser piping shall be set at an incline, with a slope of no less than 2%, in order to allow any enclosed moisture or condensate to run back down the vertical vent riser sections to the subgrade.
8. Vent risers shall be located as follows:
   - 10 feet above grade;
   - 10 feet away from any window, door, roof hatch, opening or air intake into the building;
   - 3 feet above the highest point of roof within a 10 foot radius of outlet;
   - 3 feet away from any parapet;
   - 5 feet from any electrical device; and
   - 4 feet away from the property line.
10. Venting pipe shall be clearly marked with warning labels. This may be accomplished through stencils, labels, or other permanent labeling method. Pipes shall be clearly and permanently labeled in ½-inch high (minimum) letters, near the vent piping outlets and at 10-foot (minimum) intervals along the remainder of the venting pipe. This includes sections encased within walls or other enclosures.

III. VAPOR BARRIER

The vapor barrier shall be installed beneath the concrete floor slab of the buildings shown on Sheet VM-2.0 of this plan set. General specifications for this system are as follows:

A. General

1. The vapor barrier membrane shall have a minimum cured (dry) thickness of 60 mils (0.060 inches).
2. The vapor barrier shall be placed between the bottom of the floor slab and the subgrade gravel venting layer, and fastened to footings and foundations, in accordance with this plan set. The vapor barrier shall be placed directly below the bottom of the floor slab, except where the barrier may attach to deepened interior or perimeter footings.
3. The upper surface of the vapor barrier membrane shall be protected by a protection layer, placed directly above the membrane as specified on this plan set.
4. Prior to placing the protection layer material over the vapor barrier membrane, the Project Engineer shall inspect and test the membrane, observe smoke tests by Vapor Barrier Contractor/Applicator, and approve the vapor barrier in accordance with these plans and specifications. Construction of the floor slab shall not proceed without written certification of the successful installation of the vapor barrier system by the Vapor Barrier Contractor/Applicator and the approval of the Project Engineer.
5. Where piping, electrical conduits, etc. penetrate the membrane, a collar shall be provided to create a gas-tight seal around the penetration.
6. All piping associated with the subslab vent system shall be installed below the vapor barrier membrane, or shall be sealed using approved seals or boots in accordance with these plans, where they penetrate the membrane.
7. Reinforcing steel, piping, forms, etc. shall not be supported directly on the vapor barrier membrane or protective layer covering. Flat-bottomed dobie blocks, rebar chair, or similar non-puncturing materials shall be used to support reinforcing steel atop the protection layer.
8. Equipment shall not be driven over the vapor barrier membrane or its protective covering.
9. Notification of the presence of a subslab vapor barrier system shall be permanently stamped or affixed to the slab or wall in accordance with this plan set.

B. Materials

1. The vapor barrier system shall be Geo-Seal manufactured by Land Science Technologies, or an equivalent product approved by the Project Engineer.
2. The Geo-Seal system shall consist of the following:
   - Geo-Seal Base for the base layer beneath the spray-applied membrane;
   - Geo-Seal Core for the spray-applied membrane material; and
   - Geo-Seal Bond for the protection layer above the membrane.

C. Installation

1. Concrete surfaces at the interface with the vapor barrier shall be light broom finished or smoother, free of any dirt, debris, loose material, release agents or curing compounds. All voids more than ¼-inch in depth and ¼-inch in width shall be properly filled. Masonry joints shall be struck smooth with a metal trowel. Minimum ¾-inch cant of trowel or brush applied membrane, or other suitable material, shall be applied at all horizontal to vertical transitions and other inside corners of 120° or less. The material shall be allowed to cure overnight before application of the spray-applied membrane. All cracks and cold joints greater than 1/16th-inch must be completely grouted with non-shrink grout as approved by the Project Engineer. Install Hardcast reinforcing tape over all cold joints, cracks and form tie holes (after holes and cracks are grouted). Expansion joints must be filled with a conventional waterproof expansion joint material.
2. The finished surface of the underlying venting layer shall be rolled flat and be free of debris and any protruding sharp edges. The walls of footing or utility trenches shall be smooth and free of roots or protruding rocks. Final subgrade inspection shall not precede the membrane application by more than 72 hours.
3. All penetrations shall be prepared in accordance with manufacturers specifications. Any form stakes that penetrate the membrane shall be solid plastic stakes such as the VaporStake (www.vaporstake.com) or equivalent approved by the Project Engineer. The plastic stakes shall be left in the slab and may be cut flush with the top of the concrete slab as necessary. If rebar is required to penetrate the membrane, reinforcing steel penetrations should be cleaned to remove rust to insure proper adherence of the membrane. Once sealed, reinforcing rebar shall not be removed and shall be bent over and left in the slab when poured.
4. Trenches shall be cut oversize as necessary to accommodate the membrane. Any open utility, footing, or other trench present at the time of application shall be lined with the base layer extending at least six inches onto the adjoining subgrade. The base layer shall be in integral contact with the subgrade at all interior corners. Secure all overlapped seams of the base layer in accordance with this plan set.
5. The base layer shall be sealed in integral contact with interior foundations as shown in this plan set.
6. Spray apply membrane to a 60 mil (0.060inches) minimum dry thickness except in the vicinity of elevator pits, where the membrane layer shall be applied to a minimum cured dry thickness of 80 mils (0.080 inches). If a second coat is required, remove any standing water from the membrane prior to proceeding with installation. Prepare vapor barrier membrane materials according to manufacturers recommendations.
7. The upper surface of the membrane shall be protected by the protection layer, placed directly above the membrane as specified on these plans. Prior to placing the protective layer material over the membrane, the Project Engineer shall inspect and test the vapor membrane, observe smoke tests by the Vapor Barrier Contractor/Applicator, and approve the vapor barrier in accordance with these plans and specifications. Construction of the floor slab shall not proceed without written certification of the successful installation of the vapor barrier membrane system by the Contractor/Applicator.
8. Appropriate care shall be exercised to protect the membrane and prevent penetrations subsequent to its application. The membrane shall be kept free of dirt, debris and traffic until the concrete slab is in place. It shall be the responsibility of the General Contractor to ensure that the membrane is not penetrated after the placement of the protective layer.
9. If penetrations are required during subsequent tenant improvements, the procedures are detailed in this plan set.
10. If exposed to precipitation prior to placement of the slab, the vapor barrier will trap water above its surface. Appropriate care shall be taken to prevent ponding of water atop the vapor barrier prior to placement of the slab.

D. Sealing Penetrations

1. All penetrations shall be securely in place prior to installation of the membrane. Seal all pipes and conduits that penetrate the vapor barrier as shown in this plan set..
2. All penetrations shall be cleaned, as necessary, to provide a gas tight seal. All metal penetrations shall be cleaned with a mild non-chlorinated solvent to remove factory oils and then sanded clean with emery cloth.
3. Cut base layer and protection layers around penetrations so that they lay flat on the gravel venting layer. Lay base layer and protection layers tight at all inside corners.
4. Penetration should be treated in a 6-inch radius around the penetration and 3 inches onto penetrating object. The application shall be allowed to cure completely before proceeding.
5. The penetration shall be wrapped with a cable tie at a point two inches above the base of the penetration. The cable tie shall be tightened firmly so as to squeeze the cured membrane collar.
6. Conduits penetrating the barrier shall be sealed on their interior using either electrical "Y" seals (EYS fittings) or, in conformance with electrical code, by creating an internal vapor seal at a conduit termination by placing expandable polyurethane foam (EPF). The EPF seals shall have a length at least 6 times the inside diameter of the conduit.

E. Inspections and Testing

1. Field Quality Control is a very important part of all subslab vapor system applications. The Contractor/Applicator shall check his own work for coverage, thickness, and all around good workmanship, before calling for inspections.
2. Gravel layer thickness shall be checked once per every 1,000 square feet of application. Thickness checks shall be performed prior to placement of the first protection or base layer.
3. The membrane must be cured at least overnight before inspecting for dry thickness, holes, and shadow shrinkage, and any other membrane damage.
4. Membrane coupon samples to be inspected shall be cut by the Project Engineer or its designee from the spray-applied membrane and base layer composite. One coupon sample shall be cut for each 500 square feet of vapor barrier application. Each coupon shall be square and have maximum area of 2 square inches (per manufacturers specifications). The thickness of the composite layer shall be measured on all sides with a digital caliper having a resolution of 1 mil or better. The thickness of the plain base layer (as determined from uncoated samples) shall be deducted from the composite thickness in order to determine the thickness of the spray-applied membrane. The test areas shall be marked for repair by the Project Engineer.
5. Voids left by sampling shall be patched by the Vapor Membrane Barrier Contractor/Applicator with the base layer overlapping the void by a minimum of two inches and the vapor barrier membrane shall be applied to a 60 mil minimum dry thickness, extending at least three inches beyond the base layer patch.
6. On concrete footings, the vapor barrier membrane shall be checked for coverage with a depth gauge. Four readings shall be taken over a one square inch area for every 500 lineal feet of membrane application along the footings. The minimum reading shall be recorded and the test area shall be marked for repair by the Project Engineer. Test areas at concrete footings shall be patched with to a 60 mil (0.060 inch) minimum dry thickness, extending a minimum of one inch beyond the test perimeter.
7. Each completed membrane shall be smoke tested at the completion of the installation to confirm the integrity of the membrane system. Smoke testing shall be performed by the Contractor/Applicator in the presence the Project Engineer. Several smoke tests shall be performed using the coupon sample holes and vent piping stub-outs to test the entire membrane area. Smoke shall be pumped beneath the membrane at a pressure of approximately 2 to 5 inches of water column pressure. The test area of each smoke test will be determined by visible rise in the membrane surface. Any leaks which are identified shall be repaired, the membrane allowed to cure for a minimum of 1 hour, and the membrane re-tested, until all leaks/perforations are eliminated. The number and duration of smoke tests shall be determined at the time of smoke testing by the Project Engineer. The protective layer shall not be placed over the membrane until the Contractor/Applicator has certified the successful installation of the vapor barrier membrane, and only upon the approval of the Project Engineer.

IV. SUBSEQUENT VAPOR BARRIER PENETRATIONS

A. Preserving and Repairing the Vapor Barrier:

1. To maintain the integrity of the vapor barrier, the completed slab shall not be penetrated without notification to, and approval by, the Project Engineer. However, it is recognized that tenant improvements may require building improvements that could include penetrating the concrete slab and underlying vapor barrier. If the slab is penetrated the barrier shall be preserved and repaired in accordance with these specifications.
2. Sheet VM-4.0 presents procedures for preserving and repairing the vapor barrier when penetrations are necessary. It is critical that a shallow sawcut equal to at least one inch less than the slab thickness be performed around the perimeter of the area, and the perimeter concrete be chipped away by hand in order to preserve the underlying vapor barrier. Steps 1, 2 and 4, including sawcutting, concrete breaking and concrete patching may be performed by others. It is recommended that this work be coordinated with the Project Engineer and Contractor/Applicator to ensure the remaining vapor barrier flaps are sufficient to perform the vapor barrier repairs. Step 3, the vapor barrier repairs, must be performed by the Certified Contractor/Applicator in order to maintain the original warranty.
3. Vapor barrier repairs shall be inspected and documented by the Project Engineer or their designee. Testing shall be performed as appropriate at the discretion of the Project Engineer.

VI. "AS-BUILT" DOCUMENTATION

A. The inspection of all vapor control measures constructed per these specifications shall be performed by a California licensed Professional Engineer (i.e. the Project Engineer) or his or her designee. "As-Built" Certification of installation of the vapor control measures shown in these plans shall be provided to the Project Engineer at the completion of construction.

B. Addenda to the "As-Built" documentation shall be prepared, as necessary, to document future vapor barrier repairs necessitated by tenant improvements that penetrate the vapor barrier.

PES Environmental, Inc.
Engineering & Environmental Services

A Project for:

STATE STREET CENTER
ON-GRADE TOWNHOMES

FREMONT, CALIFORNIA

Client:
Fremont State Street Center, LLC
3000 Executive Parkway, Suite 450
San Ramon, California, 94583

Revisions:

No.	Description	Date
	VMS Report Update	6/15/2016

Project No.:	220.003.03.002
Drawn By:	BP
Reviewed By:	SM
Scale:	AS NOTED
Date:	5/27/2016
Filename:	22000303002_VB_r1_1-4

Seal:

REGISTERED PROFESSIONAL ENGINEER
SCOTT M. MORGAN
C 64748
EXP. 6-30-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:
GENERAL NOTES & SPECIFICATIONS

Sheet #:
VM-1.1

Explanation

Building where Vapor Mitigation Measures to be Installed for PCE (and PCE degredation products)

N

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SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

A Project for:

STATE STREET CENTER
ON-GRADE TOWNHOMES

FREMONT, CALIFORNIA

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Seal:

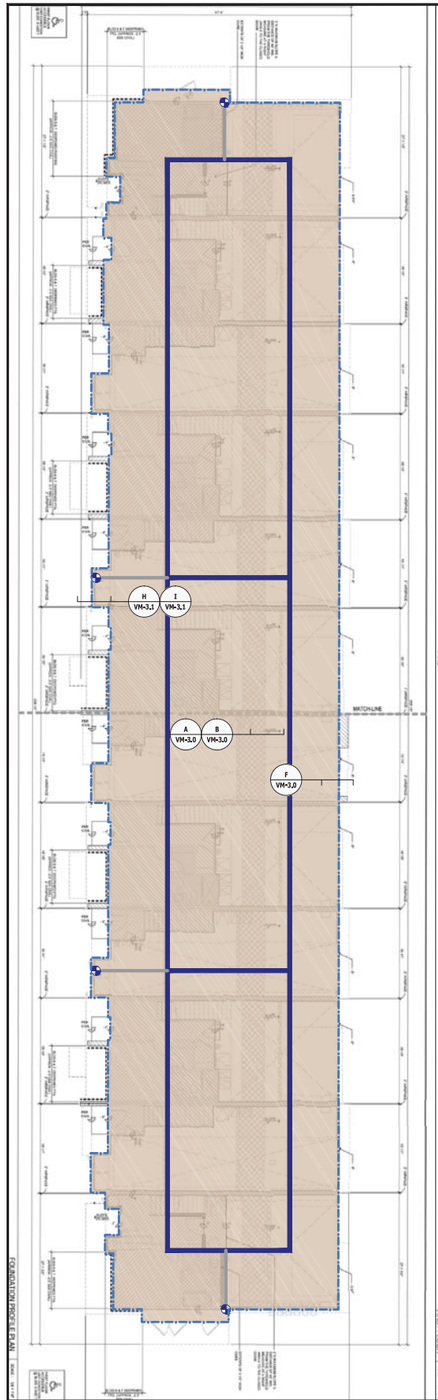
REGISTERED PROFESSIONAL ENGINEER
SCOTT M. MORRISON
C 64748
EXP. 12-31-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:

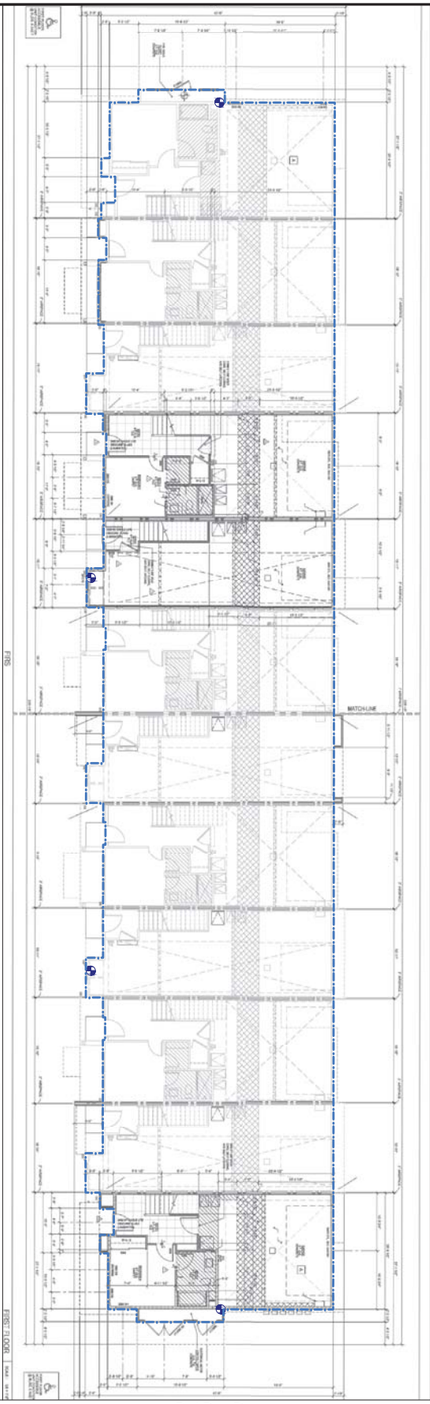
SITE PLAN

Sheet #:

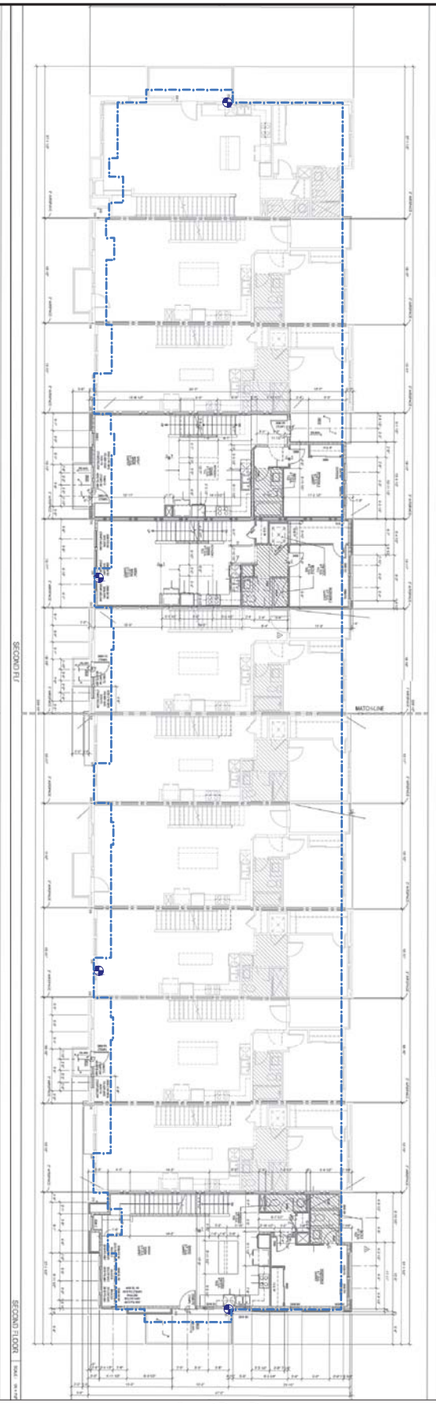
VM-2.0



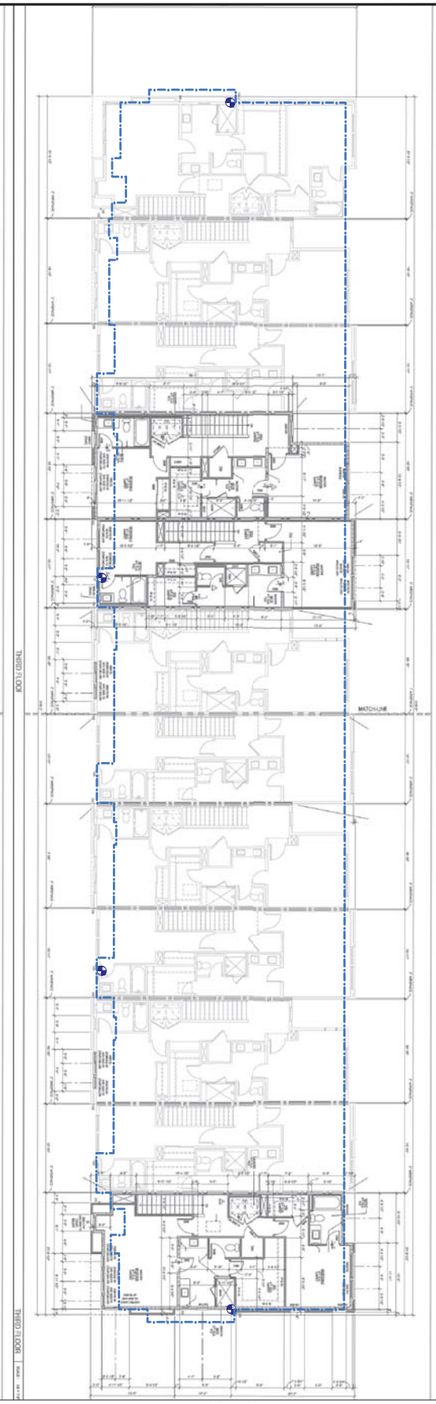
Foundation Plan
Type C.1 - Building 7



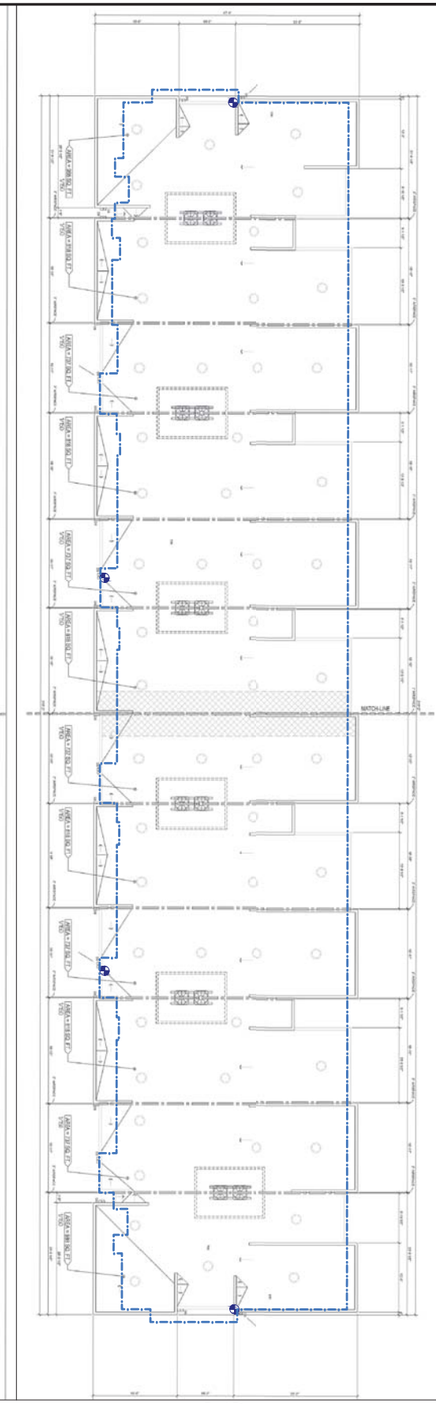
First Floor Plan
Type C.1 - Building 7



Second Floor Plan
Type C.1 - Building 7



Third Floor Plan
Type C.1 - Building 7



Roof Plan
Type C.1 - Building 7

Explanation

- Areal Extent of Subslab Vapor Barrier Membrane
- Low Profile Vent Piping
- Solid Vent Piping (3-inch diameter)
- VR1 Proposed Vent Riser Location

N

0 10

SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

A Project for:

STATE STREET CENTER
ON-GRADE TOWNHOMES

FREMONT, CALIFORNIA

Client:

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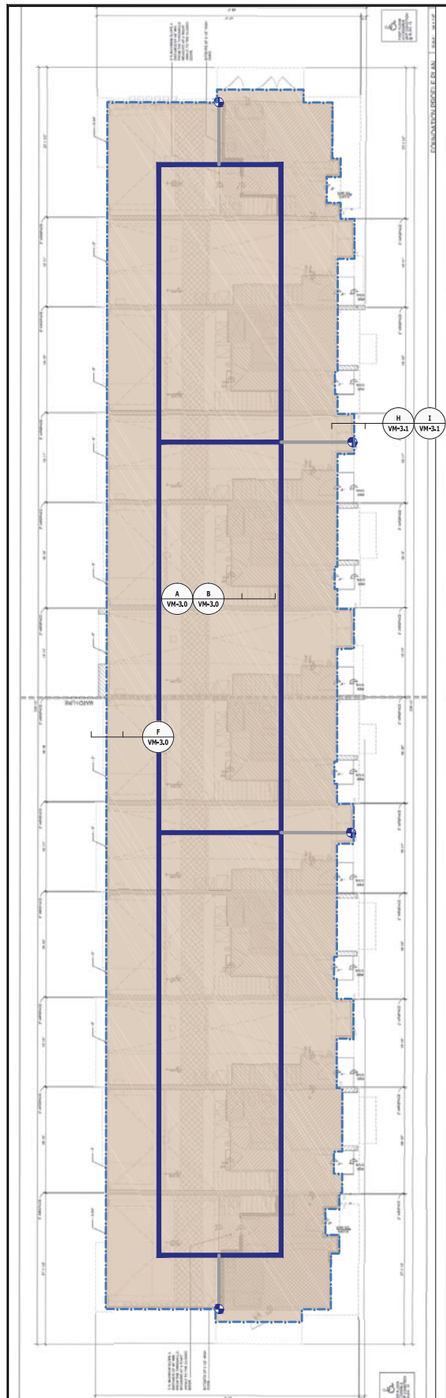
REGISTERED PROFESSIONAL ENGINEER
SCOTT M. MORRISON
C 64748
EXP 12-31-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:

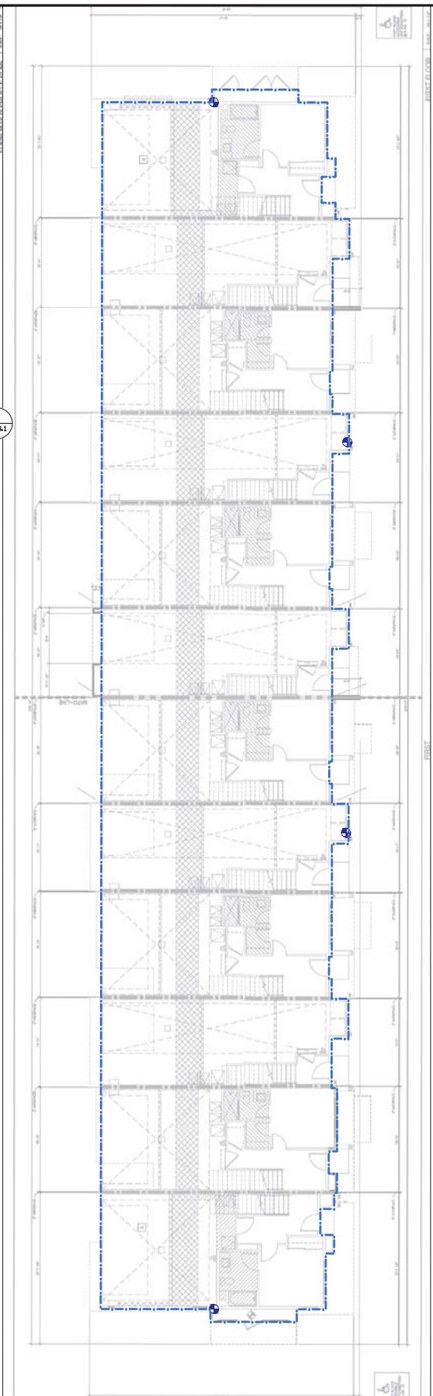
SYSTEM CONFIGURATION BUILDING TYPE C.1 (BUILDING #7)

Sheet #:

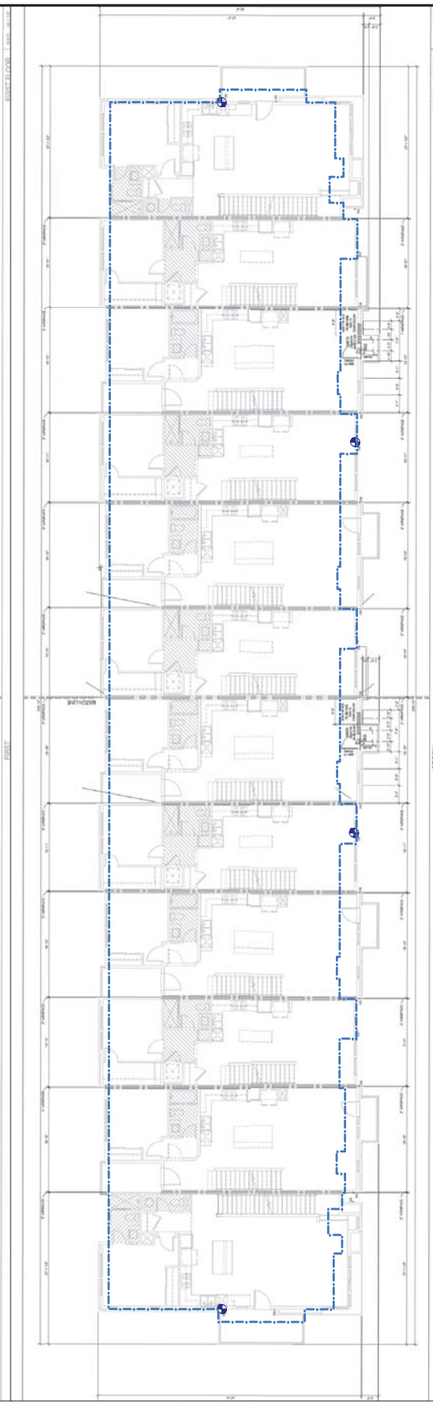
VM-2.1



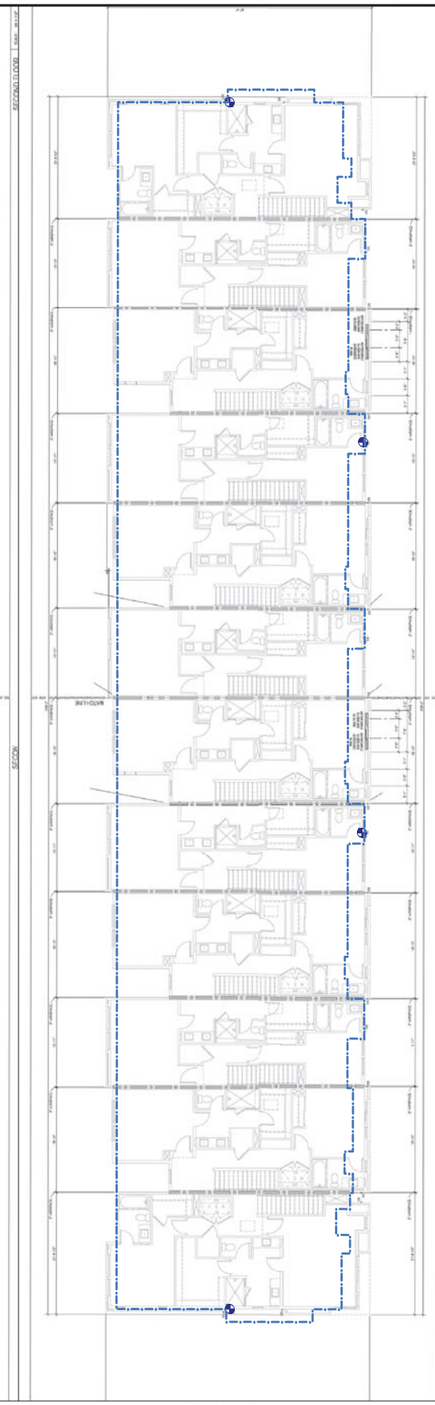
Foundation Plan
Type C.3 - Building 12



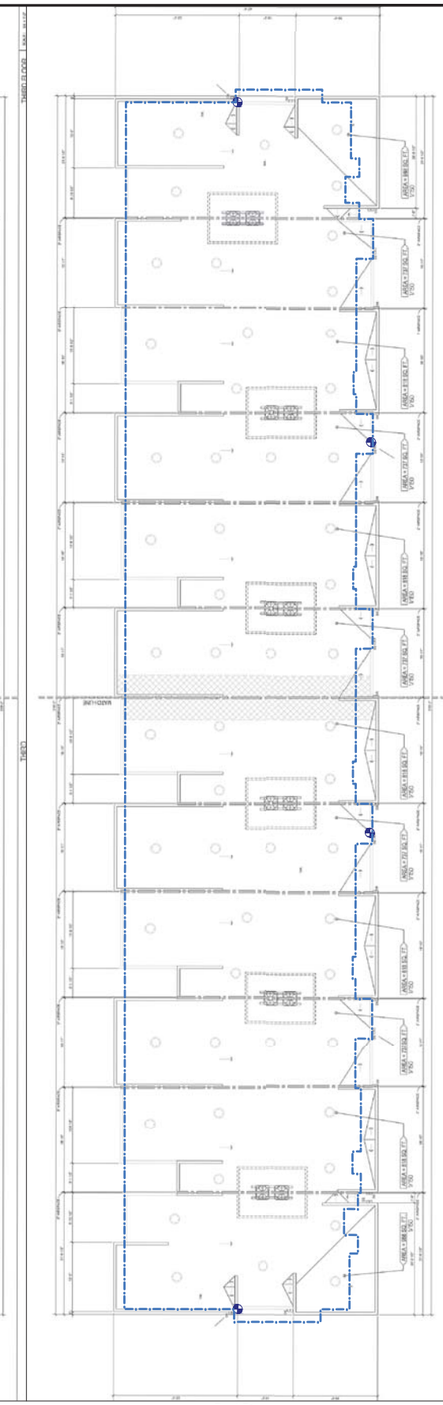
First Floor Plan
Type C.3 - Building 12



Second Floor Plan
Type C.3 - Building 12



Third Floor Plan
Type C.3 - Building 12



Roof Plan
Type C.3 - Building 12

Explanation

- Areal Extent of Subslab Vapor Barrier Membrane
- Low Profile Vent Piping
- Solid Vent Piping (3-inch diameter)
- VR1 Proposed Vent Riser Location

PES Environmental, Inc.
Engineering & Environmental Services

A Project for:

STATE STREET CENTER
ON-GRADE TOWNHOMES

FREMONT, CALIFORNIA

Client:

Fremont State
Street Center, LLC

3000 Executive Parkway, Suite 450
San Ramon, California, 94583

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Scale:	AS NOTED
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Seal:

REGISTERED PROFESSIONAL ENGINEER
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EXP 12-31-17
CIVIL
STATE OF CALIFORNIA

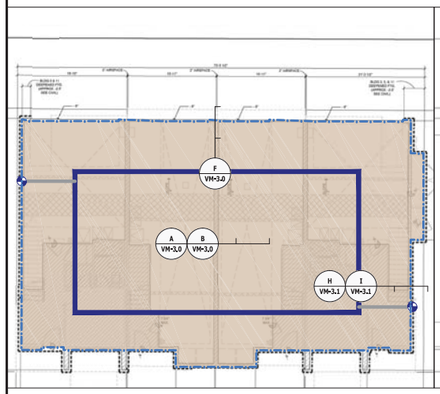
Sheet Title:

SYSTEM
CONFIGURATION
BUILDING TYPE C.3
(BUILDING #12)

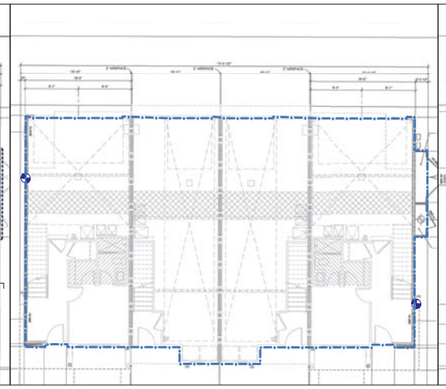
Sheet #:

VM-2.2

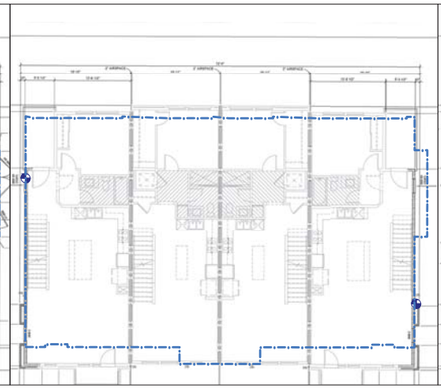
Building D



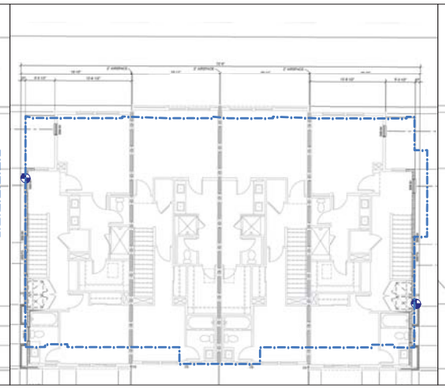
Foundation Plan
Type D - Buildings 9 and 11



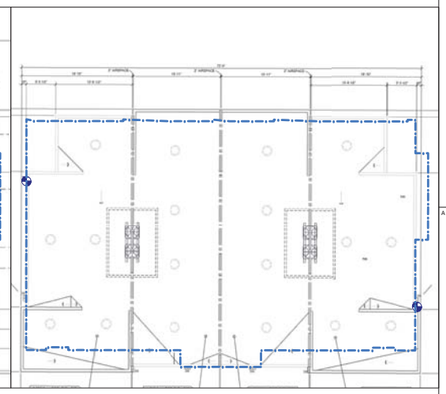
First Floor Plan
Type D - Buildings 9 and 11



Second Floor Plan
Type D - Buildings 9 and 11

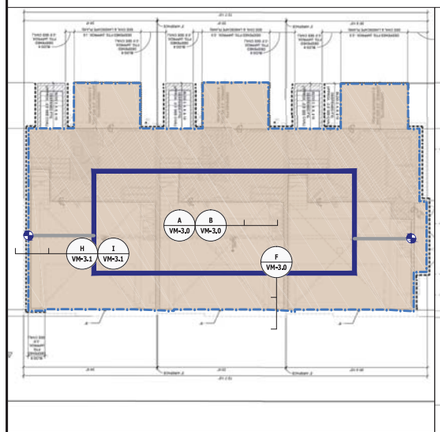


Third Floor Plan
Type D - Buildings 9 and 11

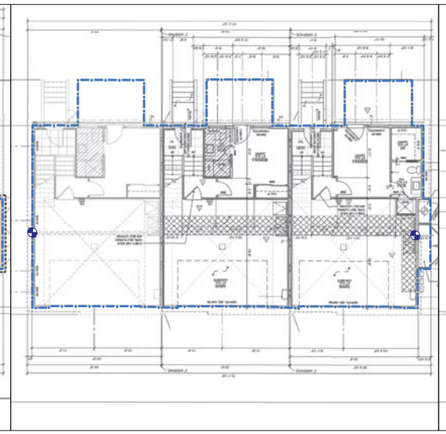


Roof Plan
Type D - Buildings 9 and 11

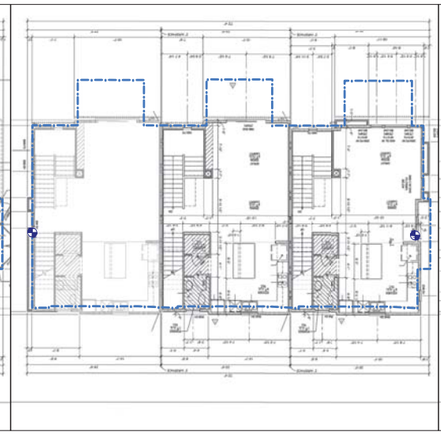
Building E



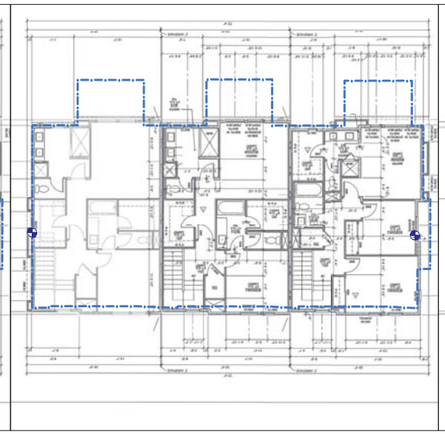
Foundation Plan
Type E - Buildings 8 and 10



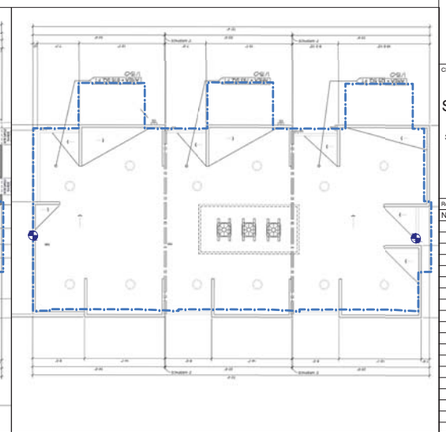
First Floor Plan
Type E - Buildings 8 and 10



Second Floor Plan
Type E - Buildings 8 and 10



Third Floor Plan
Type E - Buildings 8 and 10



Roof Plan
Type E - Buildings 8 and 10

Explanation

- Areal Extent of Subslab Vapor Barrier Membrane
- Low Profile Vent Piping
- Solid Vent Piping (3-inch diameter)
- VR1 Proposed Vent Riser Location

N

0 10

SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

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STATE STREET CENTER
ON-GRADE TOWNHOMES

FREMONT, CALIFORNIA

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Seal:

REGISTERED PROFESSIONAL ENGINEER
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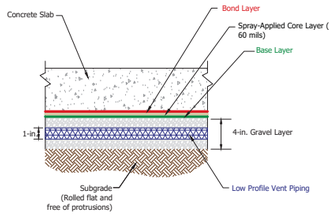
EXP 6-30-17
Civil
STATE OF CALIFORNIA

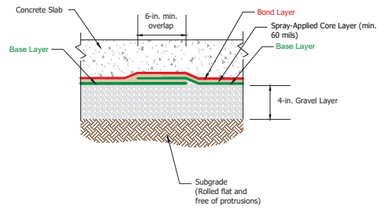
Sheet Title:
SYSTEM CONFIGURATION BUILDING TYPES D & E (BUILDINGS #8, 9, 10, AND 11)

Sheet #:
VM-2.3



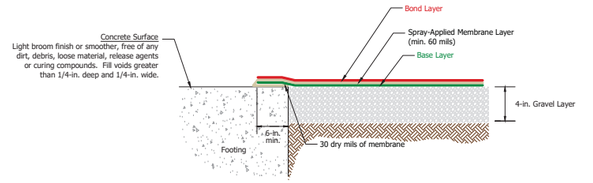
A - Detail A - Typical Membrane and Vent Piping Configuration

(Not to Scale)



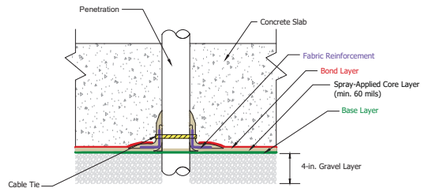
B - Detail B - Typical Membrane Lap Joint

(Not to Scale)



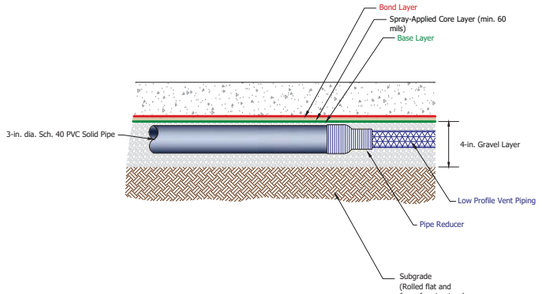
C - Detail C - Typical Membrane Termination Configuration

(Not to Scale)



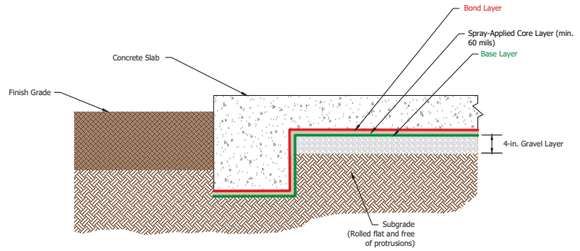
D - Detail D - Vertical Penetration Detail

(Not to Scale)



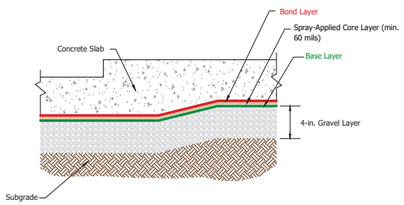
E - Detail E - Vent Pipe To PVC Transition

(Not to Scale)



F - Detail F - Typical Edge of Slab Condition Detail

(Not to Scale)



G - Detail G - Membrane at Small Slab Step (less than 12-inches)

(Not to Scale)

Explanation

- Bond Layer = Geo-Seal BOND
- Spray-Applied Core Layer = Geo-Seal CORE
- Base Layer = Geo-Seal BASE
- Low Profile Vent Piping = Vapor-Vent
- Gravel Layer = 3/8-in Pea Gravel

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REGISTERED PROFESSIONAL ENGINEER
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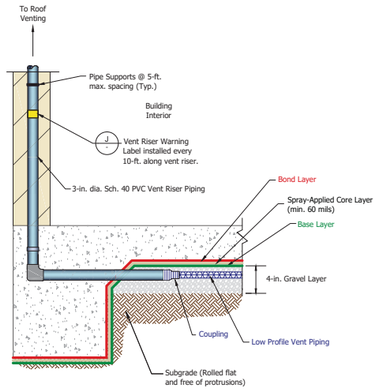
C 64748
EXP. 12-31-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:

VAPOR BARRIER AND VENT PIPE DETAILS

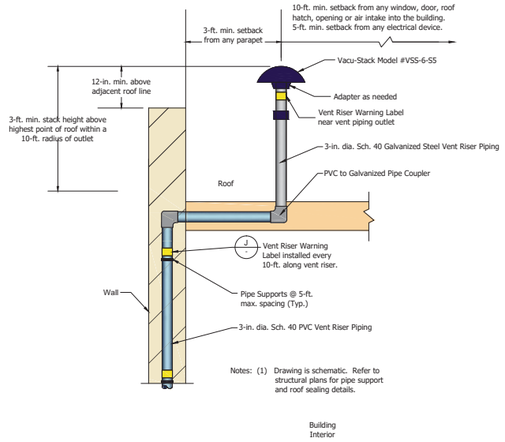
Sheet #:

VM-3.0



H - Detail H - Vent Pipe to Vent Riser Transition

(Not to Scale)



I - Detail I - Vent Riser to Roof

(Not to Scale)

CAUTION

SUBSLAB VENT PIPE

IMMEDIATELY NOTIFY BUILDING OWNER IF DAMAGED

3-in. x 4-in. wide

All labels with adhesive backing

Large letters: 1/2-in. (min.) height

Small letters: 1/4-in. (min.) height

Red letter on white or yellow background

3 min. required per vent riser

These labels are to be placed near each vent piping inlet and outlet and every 10-ft. (min.) along the vent riser piping

J - Detail J - Vent Riser Warning Label

(Not to Scale)

WARNING

THIS BUILDING IS PROTECTED WITH A SUBSLAB VAPOR CONTROL BARRIER.
ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE BUILDING OFFICIAL AND INSPECTION BY A QUALIFIED ENGINEER

This notification is to be permanently stamped or etched in the surface of the garage slab at the time it is poured or a plate with this notification is to be affixed to the slab or room wall after construction.

All letters 1/2-in. min. in height

At least 1 Warning Placard is required in each garage.

K - Detail K - Warning Placard

(Not to Scale)

Explanation

- Bond Layer = Geo-Seal BOND
- Spray-Applied Core Layer = Geo-Seal CORE
- Base Layer = Geo-Seal BASE
- Low Profile Vent Piping = Vapor-Vent
- Gravel Layer = 3/8-in Pea Gravel

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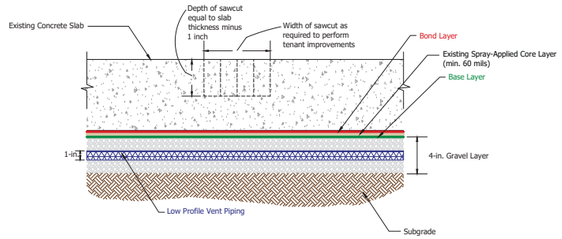
SCOTT M. MORRISON
C 64748
EXP. 6-30-17
CIVIL
STATE OF CALIFORNIA

Sheet Title:

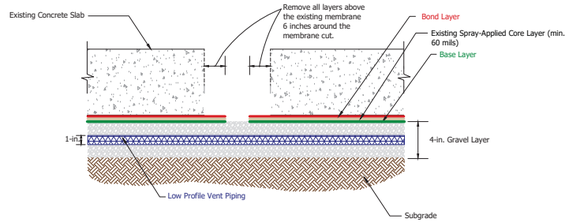
VAPOR BARRIER AND VENT PIPE DETAILS

Sheet #:

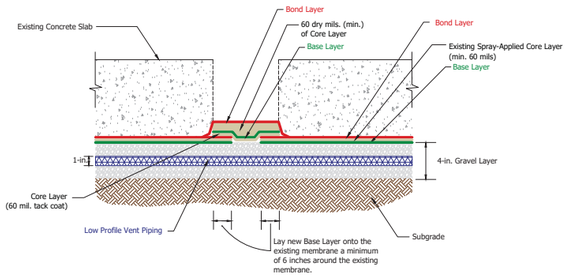
VM-3.1



Step 1 - Perform a shallow sawcut to facilitate removal of concrete.

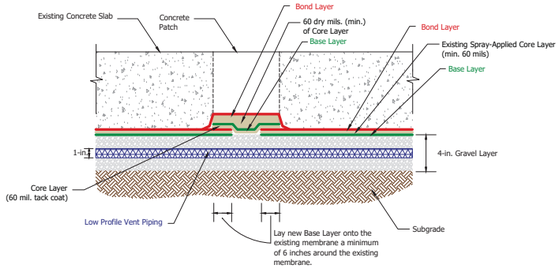


Step 2 - Gently break out concrete along edges of sawcut. Cut vapor barrier in center of sawcut area and pull back to expose gravel layer or subgrade. Remove all layers above the existing vapor barrier membrane, 6 inches around the membrane cut. Check gravel layer for presence of vent piping. Leave vent piping in place if present. Perform subgrade work.



Step 3 - Contract original approved vapor barrier installer to repair vapor barrier. Repair to include:

1. **Restoration of gravel layer.**
2. **Clean the exposed membrane area with water and a soft brush.**
3. **Wipe the exposed membrane with a mild non-chlorinated solvent and allow the solvent to evaporate completely before proceeding to the next step.**
4. **Apply a thin (60-mil) tack coat to the exposed membrane and allow to tack.**
5. **Lay new base layer onto the existing membrane referenced above a minimum 6 inches around the existing membrane cut.**
6. **Patch over base layer with vapor barrier membrane to the specified thickness and extending a minimum 6 inches onto the existing membrane.**
7. **After membrane has cured and been checked for proper thickness and flaws, install protection layer pursuant to manufacturer's instructions.**



Step 4 - Backfill sawcut area with concrete and finish to match existing concrete.

Procedures for Preserving and Repairing Vapor Barrier if Future Penetrations Required

(Not to Scale)

Notes on Repair

1. Steps 1 and 2 to be performed by others prior to vapor barrier installer arrival.
2. It is the General Contractor's responsibility to observe and supervise preparations for repair, and to ensure sufficient vapor barrier flaps remain around entire perimeter of sawcut area. If not, the vapor barrier installer may require additional shallow sawcutting and removal of concrete from the perimeter, in order to expose sufficient vapor barrier flaps for adherence of the patch.
3. All due care must be used to ensure hand-chipping of concrete from perimeter of sawcut does not penetrate or damage in-place liner.
4. Step 3 to be performed by vapor barrier installer.
5. Pouring and finishing of concrete patch to be performed by others.

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Sheet Title:

VAPOR BARRIER REPAIR DETAILS

Sheet #:

VM-4.0