

28 Marlborough Street Mitigation of Radon Gas Project

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28 Marlborough Street

Objective:

Reduce the presence of Radon gas (a known carcinogen) at 28 Marlborough Street pursuant to EPA and Massachusetts EPA guidelines. We tested for Radon two different times – both positive - 4.4pCi/L and 4.6pCi/L (threshold is 4.0pCi/L)

Best Means to Accomplish:

Install a Sub-Slab Depressurization (“SSD”) System which pulls the radon gas from under the building and vents it to the atmosphere. The SSD System requires a four inch vent pipe which must discharge at least 10 inches above the roof line and no closer than 10 feet from any occupied space or window.

28 Marlborough Street

Summary of Proposed Work:

Schedule 40, four inch PVC Pipe (painted brown or black) will be attached to the rear of the building facing Public Alley 422 (secondary elevation) and proceed vertically to under the cornice, wrap around the gutter and proceed along mansard slate roof to the flat roof for 2 feet and then end vertically 10 inches above the roof. The wrap around treatment is similar to the 6" vent pipe across the alley at 23 Commonwealth. See Exhibits 1, 2 & 3 attached.

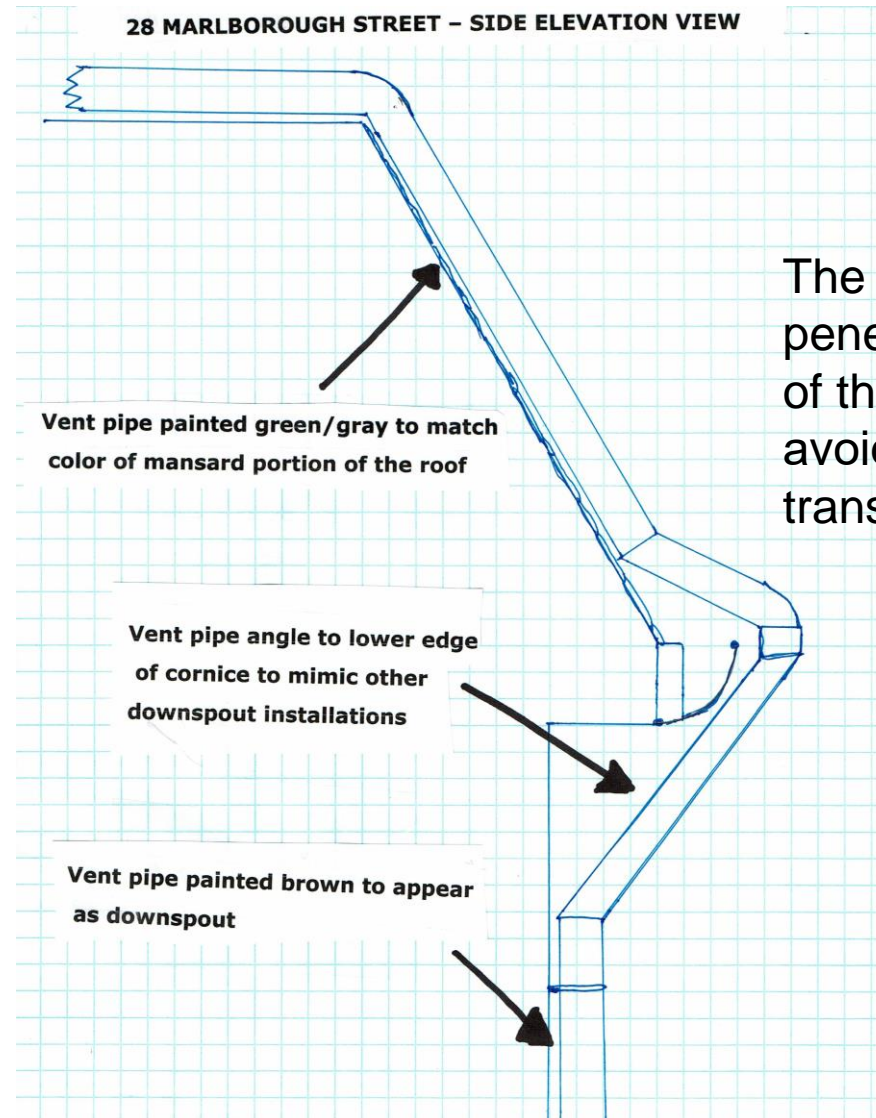
A small inline air pump is affixed to the pipe near the security light fixture. See Exhibits 4 & 5 attached. Unfortunately, because of the code, the air pump cannot be located within any habitable space and the distance between the subflooring entry point and the roof prevents its location on the roof.

Exhibit 1



Brown line depicting location of vent pipe, gray line depicting location of vent pipe on mansard slate roof. The vent pipe exits the building three feet to the East of the rear door transom, adjacent to the Security light fixture.

Exhibit 2



The wrap around treatment avoids penetrating and compromising the integrity of the cornice and mansard roof and avoids the “discharge” side of the vent transiting any habitable space.

Exhibit 3

23 Commonwealth Ave facing Public Alley 422

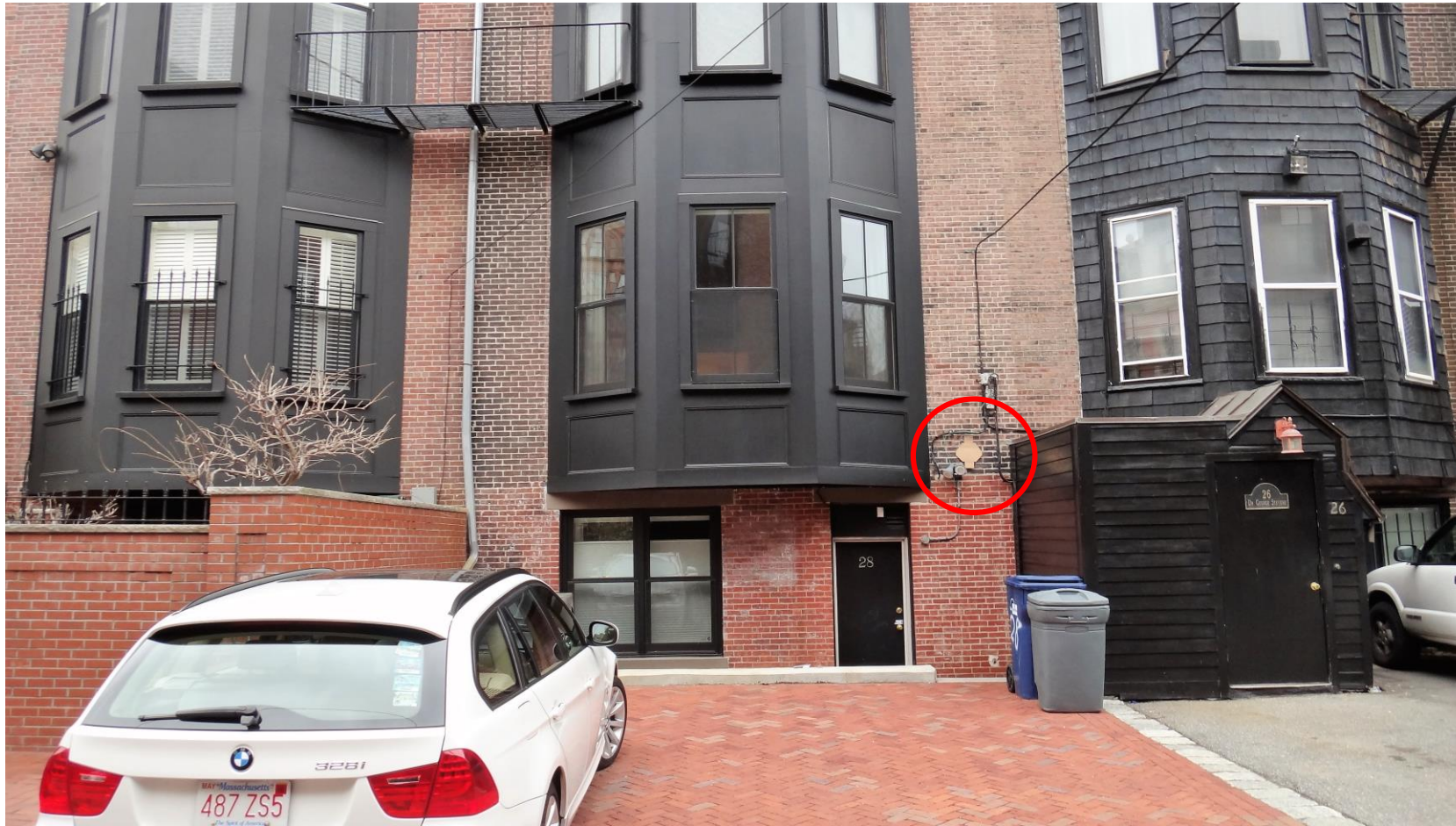


Exhibit 4



Black silhouette, circled in red, depicts size and proposed location of RP 265 inline air pump

Exhibit 5



Brown silhouette, circled in red, depicts size and proposed location of RP 265 inline air pump. Actual brown color would be darker to match other downspouts in the alley.

28 Marlborough Street – Alternatives Considered

A. Routing Vent Pipe to Roof Within the Building:

1. No stand alone flue, riser or chimney available for use. Using common flues and chimneys prohibited by code.
2. No stand alone incinerator chimney available for use.

B. Use Heat Recovery Ventilation System (HRV) or Air to Air Exchanger:

1. The HRV system is only 50 to 75 percent effective and does not adequately mitigate the radon gas issue.
2. Its use will also create an air temperature imbalance within the building.
3. HRV requires two six inch vent holes with hoods, separated by at least five feet, that would be at the front/primary elevation of the building. The HRV unit would be in the mechanical room under the front stairs/stoop which is the shortest distance between the unit and outside.
4. HRV cannot be wall mounted in basement corridor as it would violate fire and safety ingress and egress codes.

28 Marlborough Street – Alternatives Considered

Route Vent Pipe over to Western Downspout then Vertical:

1. Introduces 15 foot horizontal and 1 foot angular element at eye level. Horizontal pipe element will be subject to condensation, subsequent freezing and blockage.
2. Requires additional 5 inch holes cut in fire escape balconies which already have 7 inch holes. Would/May compromise structural and load bearing capability.
3. Manufacturers of SSD Systems recommend to use shortest, straightest pipe routing possible for best performance.

Conclusion

1. Request that the BBAC grant the application for the installation of the SSD System at 28 Marlborough Street by a duly licensed contractor as depicted in the application.
2. The color of the vent pipe will be painted be brown and gray, final color selection subject to approval by the BBAC Director of Design Review.