

Using Vapor Pins® for Pressure Field Extension Testing

Vapor Pins® are widely used for Pressure Field Extension (PFE) tests of radon and vapor-mitigation systems. The PFE test (also called a “Suction Field Extension Test” or “Communication Test”) ensures that a sub-slab depressurization (SSD) system creates sufficient vacuum everywhere beneath a floor. PFE testing is essential for proper system design and installation, and periodic testing in subsequent years verifies that the SSD continues to operate within specified limits. A common approach to measuring subslab vacuum is to drill a hole in the slab, jam a manometer into the hole, and take a reading, while running a radon fan or shop vacuum at the suction pit. Unfortunately, it can be difficult to form a tight seal between the manometer and the slab, and the test hole cannot be left open for subsequent testing.

A better approach for PFE testing is to measure the sub-slab vacuum through a Vapor Pin®. The Vapor Pin® provides a tight seal against the slab, and with the Vapor Pin® Cap in place, prevents the loss of soil gas to indoor air. The Vapor Pin® can be left in place indefinitely for subsequent measurements, or removed and reused elsewhere. For radon testing, the Vapor Pin® can be reused by simply cutting off and replacing the silicone sleeve between holes. For vapor-intrusion use, the Vapor Pin® should also be decontaminated before moving it to a different location.

For conducting PFE tests during pilot testing, the Vapor Pin® can be installed in the stick-up configuration, which requires drilling a 5/8-inch diameter hole in the slab. If the Vapor Pin® will be left in place for subsequent testing, it is typically installed in the flush-mount configuration, so that it doesn't pose a trip hazard. The flush-mount installation requires drilling a 1-1/2 diameter inch hole and a 5/8-inch diameter hole. The flush-mount Vapor Pin® may be covered with Cox-Colvin's stainless steel Secured Cover, which reduces the risk of tampering, or a black plastic Flush Mount Cover, which is more economical. We recommend using brass Vapor Pins® for one-time use, such as pilot testing, and stainless steel Vapor Pins® if points will be left in place for subsequent testing.