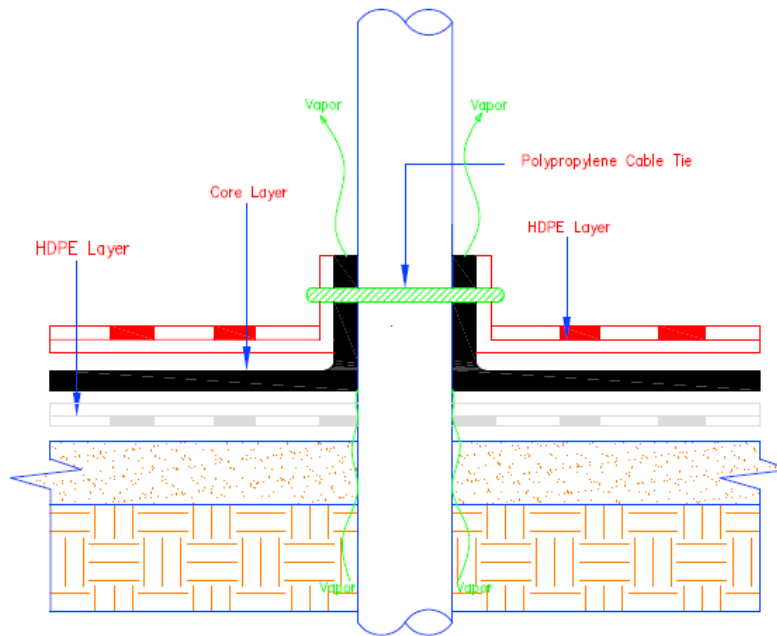


EVALUATION OF VAPOR INTRUSION MITIGATION SYSTEMS

A variety of claims have been made by marketers of competing vapor intrusion mitigation systems. Some of these claims are not technically founded and may cause further confusion for the specifier. This document is intended to outline technical considerations that are important to properly evaluate the performance of these systems:

Consider the Performance of Entire System

Leaks most frequently occur at detail areas, such as, pipe penetrations and slab-to-wall joints. In these areas, any ancillary polyethylene membrane butted up against a pipe penetration or structure will not be an effective seal and the system relies primarily upon the spray-applied membrane to impede vapor intrusion.



Consider the Formulation

Only Liquid Boot[®] spray-applied membrane system has a specially formulated polychloroprene latex-asphalt. Polychloroprene latex is superior in chemical resistance, heat resistant sagging and cold flexibility compared to styrene-butadiene latex used by others. In your college Chemistry classes or while conducting Phase II assessments you may have used polychloroprene (e.g., Neoprene) gloves for personal protection.

Consider the Performance

Liquid Boot R spray-applied membrane provides low VOC diffusion coefficients per ASTM F1770 test data that can be used in modeling vapor intrusion mitigation:

- PCE diffusion coefficient @ 6,000 mg/m³ = 2.74×10^{-14} m²/sec
- TCE diffusion coefficient @ 20,000 mg/m³ = 8.04×10^{-14} m²/sec
- Benzene diffusion coefficient @ 43,000 mg/m³ = 2.9×10^{-11} m²/sec

Consider the Relevance of the Testing Protocol

One competitor claims that their system performed better when their “three layer system” was immersed in PCE. This is not representative for two reasons. First, the competitor tested their spray-applied latex-asphalt membrane in combination with their polyethylene membrane outer layers. As previously stated, the polyethylene membrane will be bypassed at key areas, such as pipe penetrations. They should have tested their spray applied latex-asphalt membrane core by itself. Second, PCE is a DNAPL. The saturated concentration of PCE in water is 150 mg/l. Thus, a worst-case immersion test should be conducted at a concentration of 150 mg/l PCE in water, not pure PCE solvent.

Consider the Experience

Liquid Boot has over 20 years of vapor intrusion mitigation experience with over 11,000,000 square feet installed. This extensive experience and extensive testing have resulted in several regulatory approvals including the City/County of Los Angeles and Canadian Construction Materials Board.