

5.7.4 Facilitating Factors

AIMS is less intrusive, time-consuming, and costly than earlier tracer gas infiltration measurement techniques, yet its accuracy can be nearly as high. Opportunities for testing in commercial buildings are largely untapped, and a vanishingly small percentage of residences has been tested. Blower door testing is more widespread than AIMS testing, but as noted above, the two techniques serve different but complementary functions. The National Institute of Standards and Technology is currently in the process of developing a protocol (ASTM/E-6) for testing with a generic version of AIMS. If approved, the ASTM/E-6 protocol will be a consensus standard for a proper and reproducible measurement procedure.

5.7.5 Barriers to Further Penetration

To date, delays in receiving AIMS analysis results of several months or longer have been typical. In addition, analysis with gas chromatography is a complicated process and some users have received inaccurate results. The accuracy of AIMS is influenced by temperature, air mixing, and occupant activities. One of the key assumptions behind AIMS measurement is that the tracer gas is perfectly mixed and evenly distributed throughout the area. Since air flow within a house is seldom uniform, placement of AIMS monitors can strongly affect test results. Results also may be affected by the constancy of the emission rate, by how and where samples are taken, and by the length of the measurement period. Sherman (1987) suggests that inadequate mixing of gases may invalidate AIMS measurements and that the technique significantly underpredicts the average infiltration rates predicted by models.