



## Excessive Above Ceiling Leakage

As detailed in our handout *Technical Judgment, Testing Zones with Excessive High Leakage* zones with excessive high leakage will hold the gas concentration longer than the Enclosure Integrity Test Procedure will indicate. The test “sees” all leakage in the zone and assumes that half is high and half is low. If the majority of the leakage is high the Enclosure Test Procedure will predict a shorter than actual hold time and the zone may “fail”; not meet the required hold time.

This is often the case in a retrofit zone in an office situation where the side walls do not extend all the way to the overhead deck and there is an open plenum through out the building. Typically these zones will be fitted with a lay-in drop ceiling.

There is also a similar situation where the side walls do go to the overhead deck but are not sealed or have many open pockets where they meet the corrugated decking.

In testing these zones we have several options:

1. **Technical Judgment:** If the zone is properly constructed and well sealed with minimum penetrations below the drop ceiling, the zone can be surveyed and examined while pressurized with a smoke wand to determine minimal low leakage from the zone. Please refer to our handout *Technical Judgment, Testing Zones with Excessive High Leakage*.

2. **Covering the ceiling with plastic sheeting:** If the zone is small, the ceiling may be covered from below with plastic sheeting. The sheeting can be held to the “T” bars with large binder clips and sealed around the edges with blue masking tape so as not to damage painted walls. All cables going through the ceiling need to be sealed to the plastic sheeting. Generally you will only be able to do a pressurization test. Enter the pressurization test data for both the pressurization and de-pressurization tests. In evaluating the test results remember: This method is detailed in NFPA 2001/2008 C.2.6.2.8

3. **Above ceiling neutralization with 2 fans:** This method is detailed in NFPA 2001/2008 C.2.6.2.1. It has a number of limitations: It can not be used with large over head leakage areas such as an open plenum situation; or when there is air movement in the zone making it difficult to determine “neutralization” of pressures; or if there are obstructions in the overhead area interfere with flow of the air or limited height above ceiling again making determination of ‘Neutralization’ difficult. This test procedure also has the disadvantage of requiring additional equipment and specialized operator training.

**Important Note: For options 2 and 3**

**A. The allowable leakage area is 1/2 the allowable leakage area for a standard test—you will be measuring only the lower leakage in the zone.**

**B. The hold time must be twice the normal hold time. If you require 10 minute hold time the test must have a minimum of 20 minutes.**

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