



LEED ETS Standard

Background

The LEED ETS standard for large buildings is primarily focused on testing individual rooms, suites, or apartments for air-tightness. The ETS standard seeks to evaluate inter-apartment air-leakage with a view towards controlling the movement of Environmental Tobacco Smoke (ETS). The ETS standard is gaining popularity as technique for evaluating energy efficiency of units in tall buildings. The LEED standard suggests testing 1 in 7 units in the building; if any of those units fail, then 1 in 7 of the remaining units need to be tested; if any of those units fail, then all units in the complex must be tested. Many builders plan on testing all units.

Most LEED implementations define a pass/fail criteria based on the Leakage Area (in in²) per 100 ft² of Surface Area of the suite [in²/100ft²]. 1.25 - 1.5 in²/100ft² are typical targets.

The LEED ETS standard is based upon the ASTM E779-03 standard. This standard prescribes a multiple-point test at 5 or more pressure stations, ranging from 10Pa up to 60Pa. The standard prescribes testing in both the pressurization and depressurization directions. Leakage of the unit is then evaluated at a reference pressure. ASTM uses 4Pa as a reference pressure in its examples, but leaves it up to the end user to decide on the reference pressure to ultimately use. ASTM offers no guidance as to what a pass or fail leakage area is. Adherence to this standard varies from strictly following the procedure to other users who choose to conduct only a single-point test and evaluate LEED criteria based on the results of this single point.

Many testing companies take additional steps in their efforts to create an energy efficient building or to comprehensively evaluate the energy performance of a building. Using the same equipment, floor-to-floor leakage, floor-to-outside leakage, and the leakage of the entire envelope shell can (and should) be evaluated.

Our Products

Retrotec is the only manufacturer who has equipment specifically designed for this type of testing. Our 3000 Series high power fan systems have been designed from the ground up to facilitate and support these tests.

3000-Series High-Power Fans

Our 2hp 3-phase fans can run on any voltage (110v or 240v single phase), are ultra-stable, pack more power than any other fan on the market (almost 9,000 cfm), and most importantly, can run 24-7 without ever overheating. All of this in a package that looks virtually the same as a residential door fan.

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A single 3000-Series fan can easily pressurize a suite or a single floor. 3 fans can be installed into one side of a standard double-door to deliver almost 30,000 cfm into the enclosure and 2 such systems can be installed side-by-side to deliver almost 60,000 cfm.

DM-2A Digital Gauge with Automatic Control

Our DM-2A digital gauge offers all fan controls and readings right on the gauge. The gauge can control both direct fan speed or can control to achieve and maintain any room pressure (Cruise Control) right from the gauge - no potentiometers or speed controls required. Our gauge also supports on-the-fly display of flow, leakage area, and, most importantly, leakage area/area (we support units of in²/100ft²). We also support extrapolation to any pressure - So, without the use of a computer, you can easily spot check your rooms, and read right off the gauge ELA/100Ft² Room Area @ 4Pa. (note: this is not a multipoint test, it is simply a spot check that a technician could do and doesn't require a computer).

The gauges can be located 100 ft or more away from the fans, allowing centralized monitoring and control of equipment, even when that equipment is located on bordering floors (when conducting neutralization testing).

Modular Hard Panel Door

Our Hard Panel Doors offer the most professional appearance and fastest setup and disassembly time. We also offer cloth doors which, in our experience, take longer to set up and take down (but cost less).

Software

We have many flavours of software that conduct multi-point tests. This software would completely control the fan, acquire the data and produce the results.

We are actively developing new versions of software and are specifically developing an ASTM E779-03 package. Our equipment seamlessly integrates with Excel and applications can quickly be developed that allow Excel to configure and control the equipment, acquire the fan data, and analysis the results. If we don't have a production software package that meets you needs, an Excel-based package can be rapidly developed.

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Recommendations

The 2 systems that should be considered are:

Q46 (High Power Cloth Door System)
Regular house testing fan.

Q4E (High Power Modular Hard Panel System)
Much more powerful fan which will not be needed to test the apartment but is capable of testing much larger areas such as an entire floor of a high rise, making it useful for other jobs.

We also offer Rental and Rent-to-own.

These are turn-key systems without software (but everything necessary to connect to a computer and be controlled by software). Both of these systems as is, would permit a technician to conduct a single-point spot-check on rooms and would display ELA/100ft².Area (to be recorded on paper by the tech).

We'd be pleased to talk with you further about your tall-building or LEED testing or any other specialty application.