

BARRIER LEAKAGE TESTING

Barrier leakage testing is a planned and integrated systematic process to ensure, through documented verification, construction inspection and testing, that each applicable room performs at an air leakage rate that does not exceed the specified design criteria and design standards. It is typically required to show prerequisite compliance with the USGBC LEED Indoor Environmental Quality Prerequisite 2 for constraining Environmental Tobacco Smoke in residential buildings. It is also used to show compliance with smoke control barrier leakage allowances per Section 909.5.1 of the Building Code and as required to validate construction tightness between differential pressure barriers in healthcare facilities.

This testing procedure requires a collaborative team interface with the building owner, architect, design engineers, and contractors. The process begins during early conceptual design with development of construction assemblies and specifications, and continues through completion of the construction phases. These services are provided to supplement the technical, construction and commissioning services provided by all team members. This testing is independent and does not conflict with construction phase services provided by contracted test and balance agencies for mechanical systems.

Barrier leakage testing involves the following steps:

- Collaborate with the architect, owner, engineers and contractors to provide review and preparation of specification execution sections for sealants at each system
- Review applicable standards and design criteria, and prepare testing procedures
- Performing measurements to obtain the areas of all walls, ceilings and floors in applicable rooms
- Calculate maximum allowable room leakage quantities. For LEED compliance, the allowable leakage area is limited to 1.25 square inches per 100 sf of enclosed surface area
- Perform construction inspections throughout construction to assure that design intent is met and that all leak sources are sealed. This includes drywall joints, plumbing piping and conduit penetrations, curtain wall connections, slab edges, plumbing traps are filled with water, telecom cables, receptacle boxes, door sweeps and frames, and ductwork penetrations.
- Test individual rooms using a calibrated blower door assembly to show compliance in pressurization and depressurization (exhaust) modes
- Prepare final barrier leakage test report with all applicable documentation and testing data

