



The completed Al Fahidi Market Building was the first air tightness test of a large commercial building in Dubai under Dubai's new Green Building Code; Green Building Solutions International (GBSI) was selected to conduct the test.

## Air Tightness Case Study

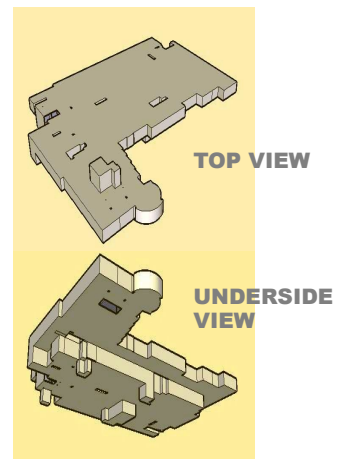
The historic Al Fahidi Market is the first building to be built and certified under the new Dubai Green Building Regulations and Specifications. These new regulations, which became mandatory city-wide earlier this year, represent a new quality standard for regional sustainable building codes. Air Tightness Testing, Thermal Bridging Inspection and Indoor Air Quality Testing are three of the newly required performance inspections; GBSI can conduct all three.

**GBSI was selected for this prestigious launch of the code** based on their qualifications as the region's leading air tightness testing agency; GBSI has conducted hundreds of air tightness tests across the UAE ranging in size from a single hotel room up to a full building of 330,000 cubic meters.

Air Tightness Testing demonstrates the permeability of the building exterior wall and roof system; calculating the infiltration of air through the building membrane into the building's interior spaces and the ex-filtration of air-conditioned air leaking out of the building. This testing of a building can increase the sustainability factor of the building by identifying the places in a building envelope where loss of cooled air-conditioned air is occurring. According to the Dubai Municipality News Portal, the market hopes to see a total energy savings of up to 45% compared to the previous market building.

The total tested volume of the market was over 50,000 cubic meters; the test itself required 6 high powered pressurization fans. William Whistler, Managing Director of GBSI, is quoted as saying "The challenge with this building was the complexity; including the escalator lobbies into the open parking areas below and the kitchens serving the open air restaurants on the roof, none of the four floors had the same plan or area". GBSI uses in-house 3-D software to calculate both the cubic volume of the space and the total surface area of testing space or "envelope".

### AL FAHIDI MARKET TEST ENVELOPE



The Air Tightness Testing & Measurement Association (ATTMA) guidelines for calculating the testing envelope volume and surface area require that all air conditioned spaces are included, service shafts and mechanical spaces are excluded and that all surfaces: walls, floor and roof must be measured as per their formula.