
Overview

This standard is for those who carry out air tightness testing and inspection of large and complex buildings, high rise buildings and phased hand over and zonal buildings. These building types are defined more fully in the current approved procedure.

You are required to develop a proposal for the review of design, inspection and sample testing regime that is required to fulfil the needs of this National Occupational Standard, and the detail in the current approved procedure, for submission to the relevant authority for approval. This generally should cover the following, the type of building, its construction type, its internal layout, the timescales for the envelope construction and the air tightness target for the building. This applies to all 3 types of buildings listed in this standard: large and complex buildings; high rise buildings; phased or zonal handover buildings.

Performance criteria

You must be able to:

Identify special requirements for large and complex buildings, high rise and phased handover / zonal buildings

P1 determine why the building is either large and complex, high rise or zonal and phased hand over.

P2 obtain acceptance from the approving body for the building that a whole building single air test is not practical and that the proposed route meets the regulatory requirements

P3 interrogate large scale drawings supplied to understand the areas that should and can be tested of all these types of buildings to cover different air line elements, floors or levels needed, joints and interfaces of various elements

P4 identify obtain and review relevant detail 1:5 / 1-10 scale drawings showing the air line seals and interfaces of the building

P5 set out a timetable of inspection from the supplied information to ensure that all elements will be inspected during the build and as completed

P6 produce site inspection reports that highlight all the air tightness details seen, commenting on the satisfactory and non-satisfactory elements

P7 identify the sample areas to be air tested and get agreement on them from all parties (floors or areas) as set out in the relevant section of the current approved standard

P8 maintain an accurate list of comments that require action and a record of any action taken to clear an issue with supporting evidence

P9 compile a summary report and sign off letter showing clearly stating the reasons and evidence that the building complies with the air tightness specification for the building

P10 identify health and safety and specific fire safety requirements when conducting air tightness tests on large and complex, high rise and zonal buildings

P11 identify the additional requirements on the contractor of providing temporary seals to internal areas of the building to prevent air leakage into them

Carry out air tightness testing of large and complex buildings, high rise

and phased handover / zonal buildings

- P12 establish the envelope area/volume of the sample space to be tested
- P13 ensure that the calibration of all air testing equipment has not expired and that it is fully operational prior to arriving on site
- P14 establish the ventilation systems in use and requirements for temporary sealing
- P15 establish the number and location of internal openings and fans to create equalisation of air pressure
- P16 ensure that all relevant external windows and doors remain closed for the duration of the test
- P17 check and list temporary seals
- P18 check and record building details
- P19 check and record meteorological conditions including barometric pressure and temperatures
- P20 record pre-test information
- P21 conduct pre-test checks
- P22 carry out the testing process following relevant test Standard
- P23 ensure that all temporary seals remain in place and external doors have remained closed for the duration of the test
- P24 gather and record test data
- P25 validate and assess test data against pre-test checks
- P26 gather and record post-test information
- P27 confirm that all building test preparation conditions have remained stable during the test
- P28 ensure that test data are accurately recorded
- P29 with reference to the test strategy compare the result of the test with the target air permeability as defined in the associated energy calculation at a test pressure of 50 Pascals to determine a pass or fail
- P30 remove all temporary seals, if any, and return the building to its previous state
- P31 remove or safely dispose of all waste
- P32 take all equipment supplied for the test away from the site
- P33 arrange re-tests where appropriate

Knowledge and understanding

You need to know and understand:

Identify special requirements for air tightness testing of non-simple buildings

- K1 the relevant and current test Standards and regulations to be applied
- K2 how to identify which components of the building require/are amenable to separate pressurisation tests
- K3 the criteria for establishing how a building can be divided into separate self-contained compartments to allow valid air tightness testing
- K4 the specific regulatory requirements for the air tightness testing of multi-storey buildings based on area, number of storeys and number of stairwells
- K5 the health, safety and specific fire safety requirements to be complied with when compartmentalising buildings for air tightness testing
- K6 how to compartmentalise buildings into discrete envelopes to achieve measurable areas of equal pressure
- K7 how to minimise air pressure loss through stairwells
- K8 how to calculate envelope areas for separate components of multi-storey or large buildings
- K9 the impact of differences in area footprint/cross-sectional area of different parts/floors of buildings and how they are measured and factored into the testing procedure
- K10 the appropriate types and numbers of fans to achieve required air pressure stabilisation in separate compartments of a building
- K11 sample testing procedures for different floors of multi-storey building to achieve an accurate assessment of the airflow rates and air permeability of the whole building
- K12 how to identify a representative sample of the building envelope area to conduct air tightness testing
- K13 how to construct temporary screen to isolate test zones to ensure that they act as air barriers during testing
- K14 how to ensure that the calibration of all air testing equipment has not expired and that it is fully operational prior to arriving on site
- K15 how to use relevant instrumentation
- K16 how to measure and record all outside and inside temperatures
- K17 understand the effects of the various corrections required in the relevant test Standard
- K18 limiting factors to be taken into account when evaluating results
- K19 the required measurements and tolerances as defined in the relevant test

Standard

K20 ways of calculating Equivalent Leakage Areas

K21 requirements for the calibration of equipment and calibration periods in accordance with traceable Standards, by UKAS accredited organisations

K22 how to identify all results outside accepted tolerances and their effect on test results and reporting

K23 the relationship between air flow rate measurements and the required range of fan flows

K24 the technical requirements of the test Standard in relation to pressure measurement

K25 how to ensure stabilisation of induced pressures throughout the building envelope

K26 the importance of recording the average of positive and negative values over minimum periods of 30 seconds and the average of all values over 30 second periods

K27 positive, negative and average values tolerance which prevent a valid test from being undertaken and how to explain this to the client

K28 how to qualify results where static pressures before or after the test are in excess of plus or minus 5 Pascals

K29 how to complete all data sheets accurately with the required results to permit the production of a test report

K30 how to calculate the total airflow required to achieve a pressure differentiation of 50 Pascals for the required air tightness target identified within the energy calculations for the building

K31 how to establish the test result

K32 procedures for the safe removal of all temporary seals and returning the building to its previous state

K33 procedures for the safe removal and disposal of waste materials

K34 equipment checks required to ensure that all supplied equipment has been collected from site

K35 the importance of following site sign out procedures and/or making appropriate people aware that you have completed the test and are leaving the site

K36 methods for identifying air leakage paths such as smoke pens

K37 how to handle re-tests

ASTATT10

Carry out air tightness testing on large and complex, high rise and phased hand over zonal buildings



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Suite Air Tightness Testing

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