

REGULATIONS AND REQUIREMENTS

With today's applications demanding more performance than ever from doors, a Lorient sealing system provides an integrated solution for acoustic, smoke, fire, thermal containment; and ease of access.

Meeting the requirements

Building Regulations exist to ensure the safety and comfort of everyone using a building. Various documents demonstrate the usual way of meeting the requirements of the Building Regulations and in many cases give specific guidance on acoustic containment, accessibility and fire and smoke containment.

Relevant Requirements

Sound:

Guidance and requirements for sound containment are found in Approved Document E (England and Wales), Technical Booklet G (N. Ireland) and Technical Handbook Section 5 (Scotland).

Document E gives specific acoustic performance requirements for door assemblies in a number of situations.

In "dwelling-houses, flats and rooms for residential purposes" (Requirement E1), a minimum acoustic performance of 29dB Rw is stated.

Further clauses in Approved Document E (2.26, 4.20 and 6.6) relate this requirement to door assemblies:

"Ensure that any door has good perimeter sealing (including the threshold where practical), and a minimum mass per unit area of 25kg/m², or a minimum sound reduction index of 29dB Rw (measured according to BS EN ISO 10140: 2010 and rated accordingly to BS EN ISO 717-1: 2013). The door may also satisfy the Requirements of Building Regulation Part B – Fire safety."

Approved Document E also covers acoustic conditions in schools. Requirement E4 states:

"Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use."

Section 8 of Document E recognises Building Bulletin 93, "The Acoustic Design of Schools" as an Approved Document, and the normal way of satisfying requirement E4.

This document gives "performance standards for airborne sound insulation between circulation spaces and other spaces used by students – minimum sound reduction index Rw":

"All spaces except music rooms 30 dB Music rooms 35 dB."

It's therefore now essential to take into account the requirements of Approved Document E when specifying and installing sealing systems for door assemblies.

Relevant Standards

The British Standards below refer to seals for doors:

- ▶ BS EN ISO 10140: 2010: Laboratory measurement of sound insulation of building elements.
- ▶ BS EN ISO 717-1: 2013: Acoustics – Rating of sound insulation in buildings and of building elements. Part 1 – Airborne sound insulation.
- ▶ ASTM-E413 Classification for rating sound insulation

Many acoustic door assemblies will also need to provide fire and smoke containment. This means that the door assembly will need to have several test reports:

- ▶ Fire resistance under the conditions of BS 476 part 20/22; BS EN 1634-1: 2008
- ▶ Smoke control under the conditions of BS 476 part 31.1 BS EN 1634-3: 2004
- ▶ Acoustic performance under the conditions of BS EN ISO 10140: 2010, rated in accordance with BS EN ISO 717-1: 2013

Fire and Smoke

Approved Document B (England and Wales), Technical Booklet E (N. Ireland), Technical Handbook Section 2 (Scotland).

The requirements for fire and smoke containment with regard to 'means of escape' are contained in the above documents.

These documents specify that practically all internal fire resistant door assemblies are also required to prevent the passage of cold smoke.

Please bear in mind that performance in relation to cold smoke needs to be considered separately from performance in relation to fire and hot smoke, and a separate test report is called for.

Accessibility

Approved Document M (England and Wales), Technical Booklet R (N. Ireland), Technical Handbook Section 4 (Scotland).

These documents specify accessibility for everyone using buildings. They detail the size and location of glazed panels in doors in various situations, in order to promote safety and accessibility. Visual contrast on the leading edge of doors is also included, as are opening and closing forces for ease of door operation, threshold height and door width requirements.

In addition to providing acoustic insulation and fire/smoke protection, doors must allow free passage. It is crucial that the sealing system fitted to a door assembly should have minimal effect on the opening and closing operation of the assembly.