

Introduction

Glazed barriers occur in many forms, including balustrades, building facades and partitions. A barrier generally has one of two key functions – separate one group of people from another, or protect people from a fall.

The glass in a glazed barrier may take the form of an infill panel within a structural frame, or it may be the primary structural material, as in a freestanding cantilevered glass balustrade. Either way the glass must be able to resist some applied loads.

This Technical Note summarises the design requirements for glass in barriers. Where detailed recommendations are given in other published documents, reference is made to those documents.

Technical Note 100 describes methods of testing glass balustrades.

Basic Performance Requirements

For glazed barriers there are four important criteria to be satisfied:

- the barrier/glass should have sufficient strength to resist the design loads with an appropriate factor of safety,
- the displacement of the barrier, under load, should be within acceptable limits for human comfort,
- the barrier/glass should have reasonable resistance to accidental impact,
- the post-failure behaviour of the glass in a barrier should be safe and, if necessary, failed glass should retain some residual strength where needed to preserve life.

Building Regulations

Building Regulations in England, Scotland, Wales and Northern Ireland incorporate the need for barriers in and around buildings where it is necessary to protect against falls. Any barrier may incorporate a glass element.

Guidance on satisfying the Building Regulations is given in the relevant versions of Approved Document K for England or Wales, Section 4 of the Technical Handbooks (for both Domestic and Non-domestic buildings) in Scotland and Technical Booklet H in Northern Ireland. The guidance in these documents is similar but there are detail differences.

The guidance typically addresses the following issues:

- Locations where barriers are required;
- Required height of barriers;
- Loads to be resisted; and
- Requirements in relation to the safety of children.

BS 6180

Guidance on the design of barriers is given in BS 6180, and this Standard is referred to in Approved Documents K for both England and Wales, and in Technical Booklet H for Northern Ireland. The Technical Handbooks for Scotland do not refer to BS 6180 in the section on barriers.

The guidance in BS 6180 also applies where there is no change in level, which is particularly relevant to internal glazed partitions. Where there is no change in level, the barrier will be subject to design loads, and permanent barriers would normally be expected to withstand these loads so as to limit damage to the barrier. However, the consequences of failure may be somewhat reduced as it is less likely to affect the safety of building users.