

HEALTH & SAFETY

Glass Safety Guidelines

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# Glass Safety

The ACOP and guidance, “[L24 (Second Edition 2013) Workplace health, safety and welfare](https://www.hse.gov.uk/pubns/books/l24.htm)”, which accompanies The Workplace (Health, Safety and Welfare) Regulations 1992 places a duty on employers to ensure that:

*“Every window or other transparent or translucent surface in a wall or partition and every transparent or translucent surface in a door or gate shall, where necessary for reasons of health and safety-*

1. *Be of safety material or be protected against breakage of the transparent or translucent material; and*
2. *Be appropriately marked or incorporate features so, in either case, to make it apparent.”*

When assessing whether it is necessary for transparent or translucent surfaces in doors, gates, walls and partitions to be of a safety material or be adequately protected against breakage, pay particular attention to the following:

‘Safety materials’ are:

* Materials which are inherently robust, such as polycarbonates or glass blocks;
* Glass which, if it breaks, breaks safely;
* Ordinary annealed glass which meets certain thickness criteria.

Glazing, with which people are likely to come into contact whilst moving in or about the building shall:

* If broken on impact, break safely, i.e. in a way which is unlikely to cause injury; or
* Resist impact without breaking; or
* Be shielded or protected from impact.

Safe breakage is defined in British Safety standards BS EN 12600 and BS 6206. In an impact test, a breakage is considered safe if it creates one of the following:

1. A small clear opening only, with detached particles no larger than the specified maximum size; or
2. Disintegration, with small detached particles; or
3. Broken glazing in separate pieces that are not sharp or pointed.

A glazing material would be suitable for a **critical location** (see Section 2, below) if it complies with one of the following:

1. It satisfies the requirements of Class 3 of BS EN 12600 or Class C or BS 6206; or
2. It is installed in a door or in a door side panel and has a pane width exceeding 900mm and it satisfies the requirements of Class 2 of BS EN 12600 or Class B or BS 6206.

You can meet the necessary requirements set out in the regulations if you adopt, in **critical locations** (see Section 2, below), one of the following approaches:

1. Measures to limit the risk of cutting and piercing injuries by the use of glazing that is reasonably safe, such that, if breakage did occur, any particles (pieces of broken glass) would be relatively harmless; or
2. Use of glazing sufficiently robust to ensure that the risk of breakage is low; or
3. Steps are taken to limit the risk of contact with the glazing.

Each of the standards mentioned above, BS 6206 and BS EN 12600 relate specifically to impact performance tests. The tests performed under these standards assess how well the glazed item being tested resists impact, and when unable to resist impact, assesses how safe the breakage is (see above for definition of **safe breakage**).

The results of each test performed under the standards classified as follows:

* BS 6206 - Class A, B or C (with Class A offering the highest level of performance), and
* BS EN 12600 - Class 1, 2 or 3 (with Class 1 offering the highest level of performance).

There are numerous types of glazing available which all fall under the category **safety materials** (see above for definition of ‘**safety materials**’) and they will have undergone impact performance testing under one or the other of the standards mentioned previously in this guidance document.

Two examples of the more common types of markings you might find on glazed items in **critical locations** (see Section 2, below) within your premises are as follows:

* **BS EN 12150 A –** with BS EN 12150 denoting the standard for “thermally toughened soda lime silicate safety glass” and A denoting that it has achieved an impact performance rating of Class A under BS 6206.
* **BS EN 14449 2 –** with BS EN 14449 denoting the standard for “laminated glass and laminated safety glass” and 1 denoting that it has achieved an impact performance rating of Class 2 under BS EN 12600.

In order to identify the grade of glass used your supplier should, as a minimum, ensure that any glazed items they supply are indelibly marked so that the marking is visible after installation and the markings should include:

* The manufacturer’s name and trademark;
* The standard for the type of glass used (e.g. BS EN 12150 / BS EN 14449, see above);
* The impact performance classification, A, B or C (BS 6260) or 1, 2 or 3 (BS EN 12600, see above).

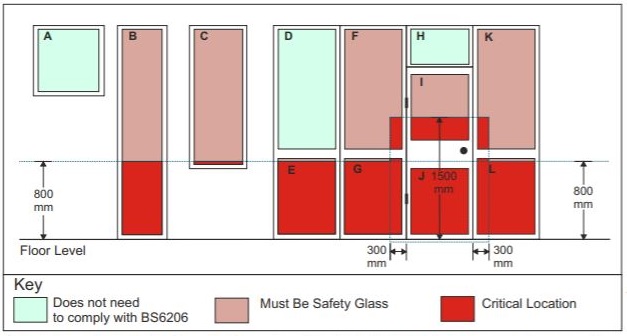
If you are in any doubt whatsoever about whether your glazed items conform to the relevant standards you should seek specialist advice from a [FENSA](https://www.fensa.org.uk/find-installers) or [GGF](https://www.ggf.org.uk/members/) registered glazier familiar with the relevant Building Regulations and the associated Approved Document guidance series.

# Critical Locations

Impacts with glazing, particularly glazing in doors and door side panels, and at low level in walls and partitions, can result in cutting and piercing injuries. For doors and door side panels, the risk is greatest for glazing between floor and shoulder level when near to door handles and push plates.

Hands, wrists and arms are particularly vulnerable. An initial impact between waist and shoulder levels can be followed by a fall through the glazing, resulting in additional injury to the face and body.

Therefore, provision of safety glass or glass protected against breakage applies to the following **critical locations**:-



**NB: Whilst the above diagram indicates that A, D and H need not be safety glass, best practice within a school setting would dictate that safety glass is used or other means by which to make broken glass safer should it be damaged, such as an appropriate stick-on laminate.**

**Doors**

Glazing within 1500mm from floor (excludes panes of less than 250mm wide with an area less than 0.5m2).

**Door Side Panels**

Glazing within 300mm from the edge of the door and within 1500mm from ground level.

**Windows and Low level Glazed Areas (excluding doors)**

Within 800mm from the floor.

# Visibility Marking

The risk of collision is greatest in large, uninterrupted surfaces where the floor is at similar level on each side, so people might reasonably think they can walk straight through.

Where glazed areas are not apparent, there is a need to mark glass e.g. by using hazard warning stickers. These should be placed at an appropriate height. Care should be taken to place them at lower levels as well as higher levels where toddlers or young children use the building.

If features such as mullions, transoms, rails, door frames, large pull or push handles, or heavy tinting make the surface apparent, marking is not essential.

Where marking is needed, it should be conspicuous and at an appropriate height, for example coloured lines or patterns.

# Falls from Windows

Windows that are large enough to allow pupils to fall out should be restrained sufficiently to prevent such falls.

The opening should be restricted to 100 mm or less. Window restrictors should only be able to be disengaged using a special tool or key. Access may need to be restricted to balconies that are not designed to prevent people who are at risk from climbing over.

# Roles and Responsibilities

Head teachers are responsible for identifying any glazing and window openings that do not meet the appropriate safety standard. They should be aware of any glass in critical locations and ensure that it is well marked and also ensure that there is routine replacement of broken or cracked window panes.

Once identified, remedial action should be taken, giving priority to those areas where the likelihood of the glass causing injury is highest. Subject to a risk assessment and working within the scope of “reasonably practicable” a programme of works should be developed to ensure compliance.

If you are in any doubt whatsoever about whether your glazed items conform to the relevant standards you should seek specialist advice from a [FENSA](https://www.fensa.org.uk/find-installers) or [GGF](https://www.ggf.org.uk/members/) registered glazier familiar with the relevant Building Regulations and the associated Approved Document guidance series.

# Version Control

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| **Version Control** | **Date Released** | **Approved By** | **Amendment** |
| 1 | March 2010 | Health & Safety | Document created. |
| 2 | October 2012 | Health & Safety | Document reviewed with minor changes. |
| 3 | Dec 2012 | Health & Safety | Document reviewed with minor changes. |
| 4 | Oct 2021 | Health & Safety | Document reviewed with changes to wording and formatting.  Introduced guidance from Approved Document K and Building Regulations 2010.  Document updated to Word (.docx) from Word 97-2003 (.doc).  Hyperlinked HSE guidance document. |
| 5 | Oct 2021 | Health & Safety | Revised wording regarding British Standards.  Added reference to FENSA and GGF (trade associations for the glazing industry). |