

## Requirement K4: Protection against impact with glazing

This approved document deals with the following requirement from Part K of Schedule 1 to the Building Regulations 2010.

Requirements	
<i>Requirement</i>	<i>Limits on application</i>
<b>Protection against impact with glazing</b>	
<b>K4.</b> —Glazing, with which people are likely to come into contact whilst moving in or about the building shall:	
(a) if broken on impact, break in a way which is unlikely to cause injury; or	
(b) resist impact without breaking; or	
(c) be shielded or protected from impact.	

### Performance

In the Secretary of State's view, you can meet requirement K4 if you adopt, in critical locations, one of the following approaches.

- 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 would be relatively harmless.
- Use of glazing sufficiently robust to ensure that the risk of breakage is low.
- Steps are taken to limit the risk of contact with the glazing.

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, especially when normal building movement causes doors to stick.

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

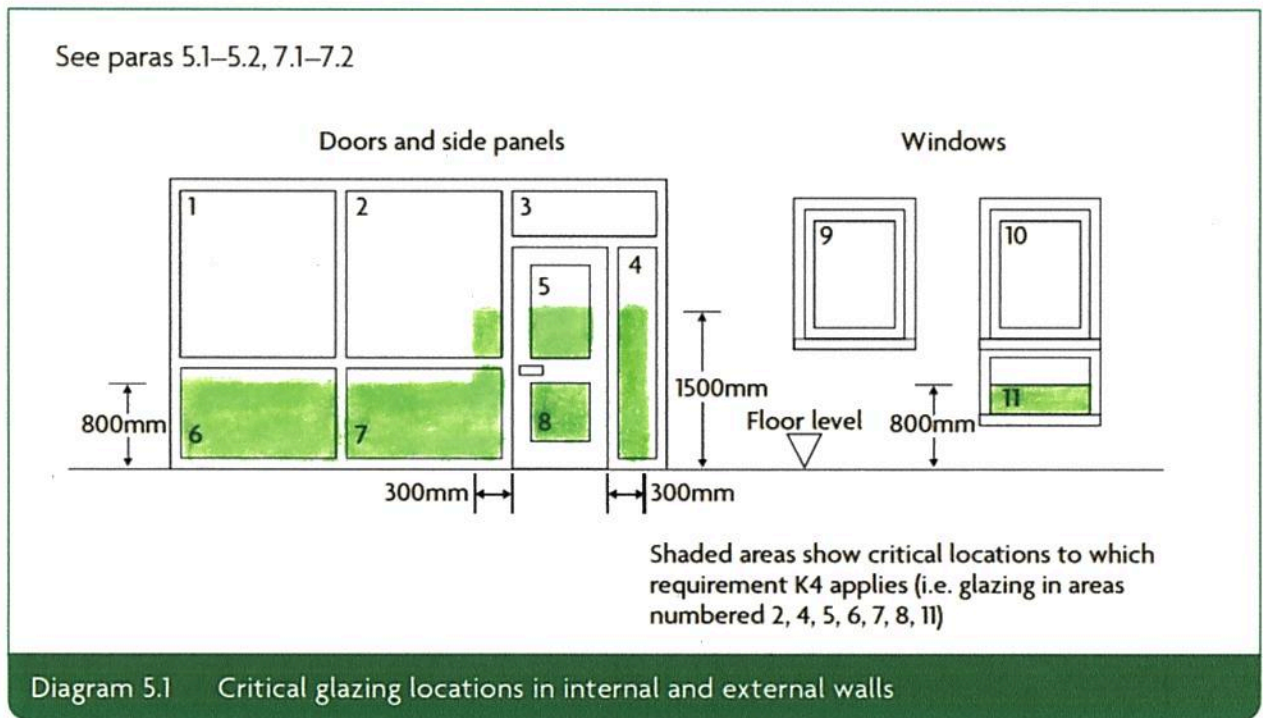
In walls and partitions, away from doors, the risks relate predominantly to glazing at low level. At that level, children are especially vulnerable.

## Section 5: Protection against impact with glazing

### Glazing in critical locations

#### For all buildings

5.1 Diagram 5.1 shows critical locations in terms of safety.



5.2 In critical locations, comply with one of the following.

- Ensure that glazing, if it breaks, will break safely (see paragraphs 5.3 and 5.4).
- Choose glazing that is one of the following:
  - robust (see paragraph 5.5)
  - in small panes (see paragraphs 5.6 and 5.7).
- Permanently protect glazing (see paragraph 5.8).

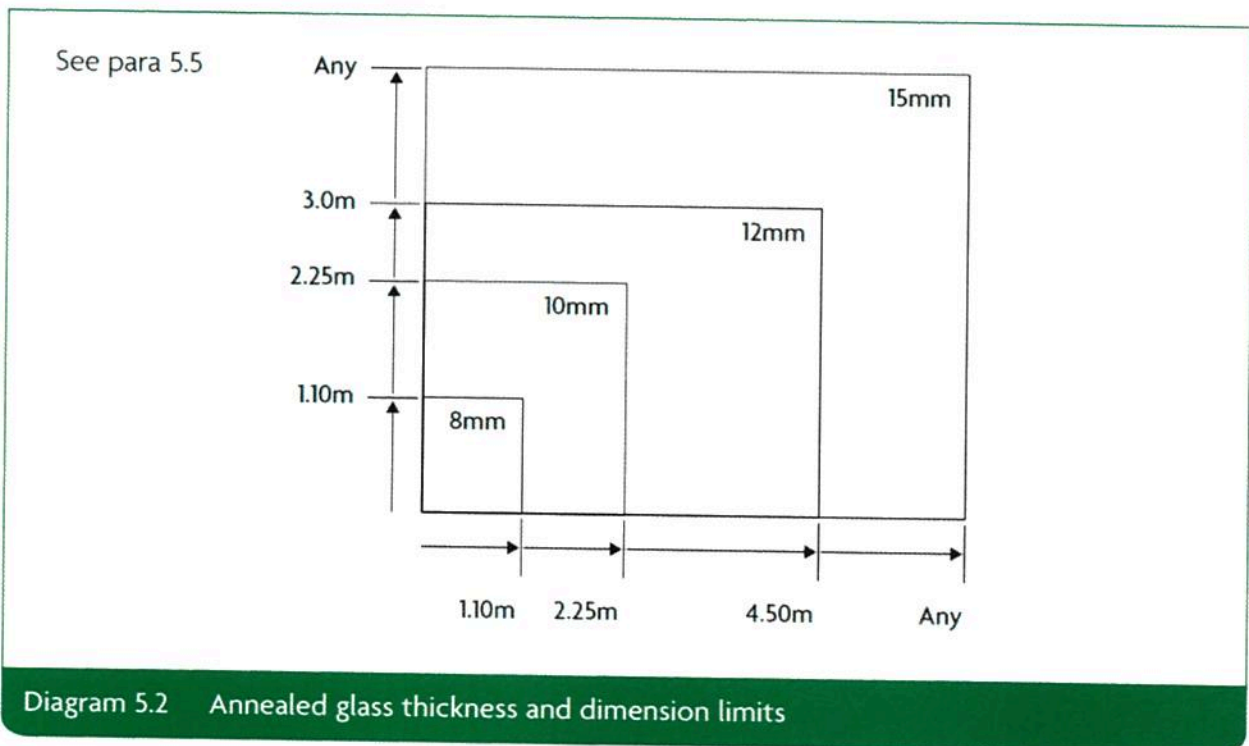
## Safe breakage

- 5.3 Safe breakage is defined in **BS EN 12600** section 4 and **BS 6206** clause 5.3. In an impact test, a breakage is safe if it creates one of the following.
- A small clear opening only, with detached particles no larger than the specified maximum size.
  - Disintegration, with small detached particles.
  - Broken glazing in separate pieces that are not sharp or pointed.
- 5.4 A glazing material would be suitable for a critical location if it complies with one of the following.
- It satisfies the requirements of Class 3 of **BS EN 12600** or Class C of **BS 6206**.
  - 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 of **BS 6206**.

## Robustness

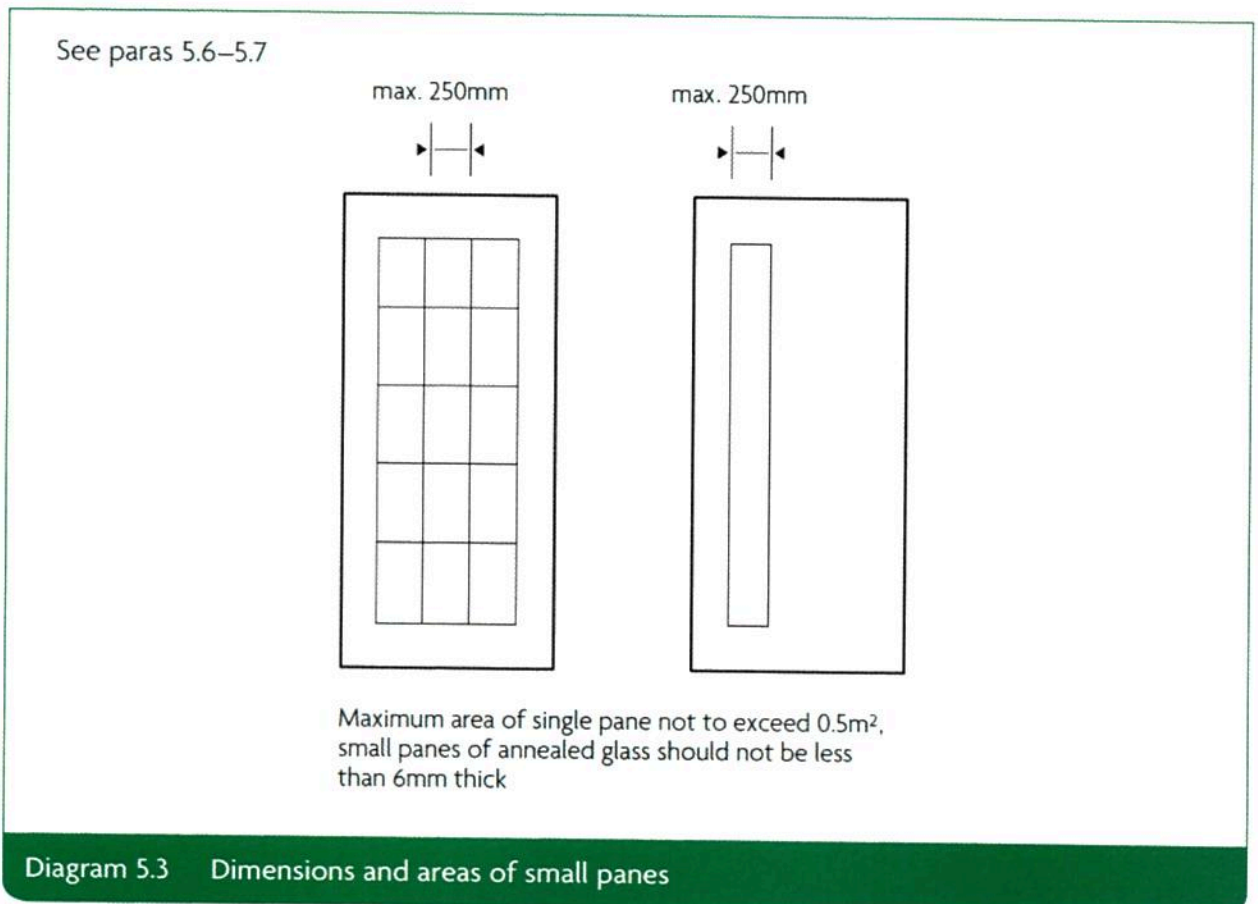
- 5.5 Some glazing materials such as annealed glass gain strength through thickness; others such as polycarbonates or glass blocks are inherently strong.

The maximum dimensions for annealed glass of different thicknesses for use in large areas forming fronts to shops, showrooms, offices, factories and public buildings with four edges supported are shown in Diagram 5.2 (see also paragraph 7.1).



### Glazing in small panes

- 5.6 In the context of this approved document, a 'small pane' is an isolated pane or one of a number of panes held in glazing bars, traditional leaded lights or copper lights (see Diagram 5.3).
- 5.7 Small panes should be provided in accordance with all of the following.
- In a small annealed glass pane, use glass with a minimum 6mm nominal thickness *except in the situation described in b.*
  - In traditional leaded or copper lights, when fire resistance is not important, you may use 4mm glass.
  - Use the dimensions and areas shown in Diagram 5.3.



### Permanent screen protection

5.8 If glazing in a critical location is protected by a permanent screen then the glazing itself does not need to comply with requirement K4.

The permanent screen should comply with all of the following.

- Prevent a sphere of 75mm from coming into contact with the glazing.
- Be robust.
- If it protects glazing installed to help prevent people from falling, be difficult to climb (e.g. no horizontal rails).

See Diagram 5.4.

