Some Fundamentals in Building Regulations 2000 Approved Document N

> *"The aim of this leaflet is ensure that Document N is easily understood, by both customers and our operatives. Below summarises in the safe use of glass and specifications for safety glass in various circumstances. For this reason it should only be used as a guide, and the Approved Document N should be consulted to avoid misinterpretation"*

Protection against impact

Document N has been issued and approved by the Secretary of State for the purpose of providing practical guidance with respect to the requirements of Schedule 1 and to Regulation 7 of the Building Regulations 2000 for England and Wales.

Section 1 focuses upon protection against impact and the reducing risks in critical locations. Glazing, with which people are likely to come into contact whilst moving in or about the building, shall:

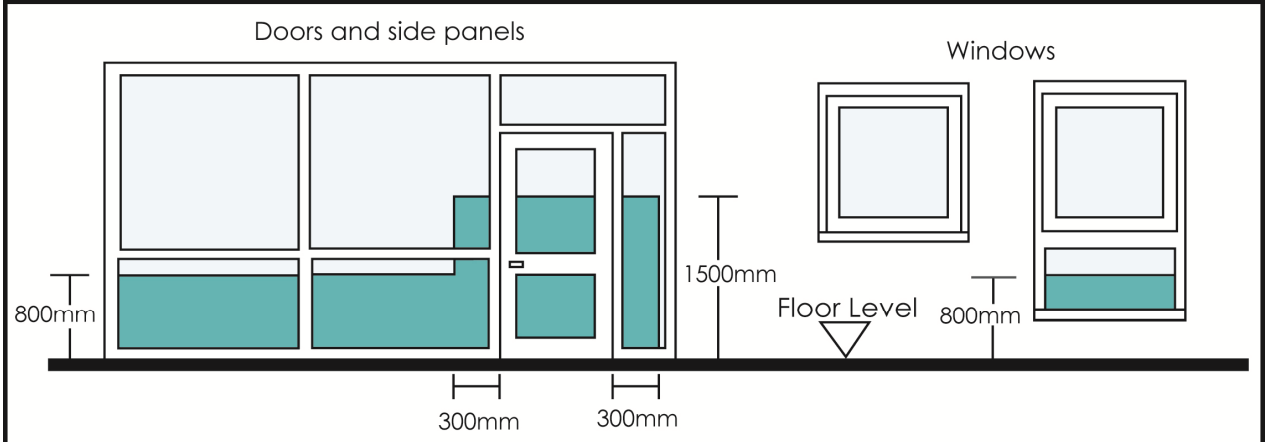
a. If broken on impact, break in a way which is unlikely to cause injury or
b. Resist impact without breaking
c. Be shielded or protected from impact

Critical Locations

Locations which may be deemed 'critical' in terms of safety are:

a. Between finished floor level and 800mm above that level in internal and external walls and partitions (see diagram 1)
b. Between finished floor level and 1500mm above that floor level in a door or a side panel, close to either edge of the door (see diagram 1)

Diagram 1 - Critical locations in internal and external walls



Reducing the Risks

Glazing in critical locations should either,

i. Break safely
ii. Be robust or in small panes
iii. Be permanently protected

These three issues are discussed on the following page in more detail.

i. Safe Breakage

Safe breakage is defined in BS 6206:1981 specification for impact performance requirements for flat safety glass and safety plastics for use in buildings: clause 5.3, and is based on an impact test which requires the result of the impact to be limited to creating:

a. A small clear opening only, with a limit to the size of the detached particles; or
b. Disintegration, with small detached particles; or
c. Breakage resulting in separate pieces that are not sharp or pointed.

In terms of safe breakage, a glazing material suitable for installation in a critical location would satisfy the requirements of Class C of BS 6202 or, if it is installed in a door or in a door side panel and has a pane width exceeding 900mm, the requirements of Class B of the same standard.

ii. Robustness

Some glazing materials, such as annealed glass, gain strength through thickness; others such as polycarbonates or glass blocks are inherently strong. Some annealed glass is considered suitable for use in large area forming fronts to shops, showrooms, offices, factories and public buildings. Reasonable glass thickness / dimension limits for annealed glass which may be used in these locations are shown in table 1.

Toughened / Annealed Glass			Laminated Glass	
Thickness	**Maximum Size**	**Maximum Area**	**Thickness**	**Maximum Area**
8mm	1100 x 1100mm	1.2m^2	6.4 - 7.5mm	4.5 m^2
10mm	2250 x 2250mm	5.1 m^2	8.8 - 9.5mm	6.5 m^2
12mm	3000 x 4500mm	13.5 m^2	10.8 - 11.5mm	8.9 m^2
15mm	No limits	No limits	12.8 - 13.5mm	13 m^2

Table 1

iii. Permanent screen protection

If, as part of a design solution, glazing in a critical location is installed behind permanent screen protection, the screen should:

a. Prevent a sphere of 75mm from coming into contact with the glazing;
b. Be robust; and
c. If it is intended to protect glazing that forms part of protection from falling, be difficult to climb.

Any glazing in a critical location which offers adequate and permanent screen protection does not need to comply with requirement N Section 1. However it may well be more costly to implement a permanent barrier, as well as reducing the aesthetics of the location.

Glazing small panes in a critical location

Small panes refer to an isolated pane or number of panes contained within glazing bars or traditional leaded lights. Small panes should have a smaller dimension not exceeding 250mm and an area not exceeding 0.5 m^2 each measured between glazing beads or similar fixings. Annealed glass in a small pane should not be less than 6mm nominal thickness, except in traditional leaded lights, in which 4mm glass would be acceptable, when fire resistance was not a factor.

Summary

Although Approved Document N was implemented to make clear the practical use of safety glazing, it may not appear so straight forward. Prentice Glass therefore can offer free advice on the requirements that you have to meet, and assist in finding the best solution.