



Blast Resistant Glass Datasheet

Toughened glass

Toughened (fully heat tempered) glass provides a degree of safety but not complete security and is therefore not recommended for external window or door use. It can, however, resist high blast pressures without damage provided it is well supported in a strong and rigid frame. When it does break its fragments cause fewer injuries than plain glass shards. When used on its own it should have anti-shatter film applied.

Laminated glass

Laminated glass offers a higher level of protection than toughened glass. The minimum overall thickness of laminated glass classed as blast resistant is 7.5mm, including a minimum polyvinylbutryal (pvb) interlayer thickness of 1.5mm.

The laminated glass should be fixed in a frame designed to withstand the bending effects of a static load of 7kN per square metre over the complete area of the glazing and frame. The fixings of rebates to the frame and of frame to the structure should be designed to withstand a line load of 20kN per metre of perimeter. These loads are broadly applicable, for nominal design without factors of safety, to most glazing systems incorporating 7.5mm laminated glass, but are based on requirements for panes of about a 2 square metre area. The loads should be factored up by 50% to match the increased blast resistance of smaller windows of about 1 square metre. The line load for fixings may be factored down by 25% to 15kN per metre of perimeter for windows of about 4 square metres overall area; but the 7kN per square metre should not be significantly reduced when designing the frames of large glazing systems.

Panes with an edge dimension of 1m or more should be provided with a frame having a glazing rebate of at least 35mm giving a bearing of 30mm. Greater protection may be provided by setting the pane in double-sided adhesive security glazing tape or ideally bonded in sealant. If robust frames and deep rebates cannot be provided, a level of protection equivalent to anti-shatter film on plain glass with net curtains can be achieved using thinner laminated glass, e.g. 6.8mm thick.

In double glazing, the preferred standard is a 7.5mm laminated glass inner pane with a 6mm toughened glass outer pane in a robust frame with deep rebates.

Contact IGC for more information.

**Overall glass makeup thickness and weight depends on glass processor*

**Maximum sizes available on request*