

Technical Note No. 11 GLASS TYPES



Introduction

Glass can be used to provide a durable, transparent enclosure to a building. However, standard annealed glass can be treated in a number of ways to improve:

- Appearance - clear, reflective, coloured, patterned, printed;
- Environmental properties - heat loss, solar gain, acoustic isolation;
- Integrity - safety (e.g. human impact or fire resistance), security (e.g. resistance to bandits, blasts or bullets) and strength (e.g. wind or snow loads).

Glass and the Building Regulations

The use of glass types, which provide enhanced levels of environmental performance or integrity is mandatory for particular glazing situations.

Thermal insulation

Approved document L1 dictates insulation levels for dwellings and other buildings whose floor area exceeds 30m², and thus the maximum allowable glazed area, depending on the glass type and type of building.

Safety (impact)

Approved document N and BS 6262 contain guidance on glazing locations where accidental impact is likely, and selection of appropriate safety glass types. Safety glass should reduce the risk of injury, by either resisting breakage, breaking safely or breaking with no significant penetration (i.e. by containment). BS 6206 gives impact test requirements for three classes

of safety glass increasing in severity from C to A.

Safety (falling)

Part K gives details of the requirements for protection from falling. BS 6180 gives recommendations for the design and construction of temporary and permanent barriers in and about buildings.

Safety (fire)

Areas next to escape routes must have a limited area of glazing or incorporate special glass types to allow the safe passage of occupants from a fire (see Approved Document B). Reaction to fire is now classified with two ratings:

1. Integrity - the ability of a wall or roof to retain structural strength and contain combustion products during a fire, and
2. Insulation - the ability of a wall or roof to resist the transfer of heat from a fire.

For all transparent glazings, sufficient infra-red radiation may be transmitted to cause ignition of materials on the other side. The exception is laminated glass with an intumescent interlayer(s), which on exposure to fire becomes opaque and limits or resists the transmission of conductive and radiative heat. The safety of overhead glazing, where falling broken or heat-softened glass may prevent safe escape of the occupants or limit safe access for firefighters, is particularly important.

Security

Security requirements are not covered by the Building Regulations but may be important and