Processing restrictions

The characteristics of toughened and heat strengthened glass preclude any cutting or processing after manufacture. All holes and shapes must, therefore, be specified before processing.

The Glass and Glazing Federation

The Glass and Glazing Federation (GGF) is the recognised leading authority for employers and companies within the flat glass, glazing, home improvement, plastics and window film industries. GGF Members can be found in over 1,500 business locations throughout the UK.

Talk to the specialists

All GGF members follow a strict code of conduct which is laid down in the government approved GGF Code of Good Practice. By dealing with a GGF Member you reduce the risk of problems with any work carried out.

The GGF logo on a company's literature or vehicles is a sign of quality and reliability. Insist on a GGF member.

Contact us for a list of Toughened Glass Group Members in your area.

Look for the logo

Glass and Glazing Federation

Further information on toughened glass can be found in the following GGF publications:

- The Right Glazing in the Right Place
- GGF Standard for the Quality of Thermally Toughened Soda Lime Silicate Safety Glass for Building Data Sheet 4.4
- GGF Standard for Heat Treated Glasses Data Sheet 4.4.1
- Guide to the Selection of Glass and Plastics Glazing Sheet Materials for Overhead Glazing in Conservatories Data Sheet 5.7.1
- Non-vertical Overhead Glazing – Guide to the selection of Glass from the Point of View of Safety Data Sheet 7.1
- Marking of Installed Safety Glass

References

The following standards refer to toughened glass

BS EN 12600 2002 Glass in Building – Pendulum test, impact test for flat glass and performance requirements.

BS 3193 2008 Specification for thermally toughened glass for use in domestic appliances

BS 857 1967 Specification for safety glazing for land transport

BS AU 178a 1980 Specification for road vehicle safety glass

BS 6262 Part 4: 2005 Code of Practice for Glazing in Buildings

BS 6180 1999 Code of Practice for Protective Barriers in and about Buildings

BS EN 12150 2000 Glass in Buildings – Heat soaked, thermally toughened soda lime silicate safety glass

BS EN 14179 2005 Glass in Building – Heat soaked thermally toughened soda lime silicate safety glass

BS EN 1863-1 200 Glass in Building – Heat strengthened soda lime silicate glass

Approved Document N of the Building Regulations

Workplace (Health, Safety and Welfare) Regulations 1992

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Glass and Glazing Federation

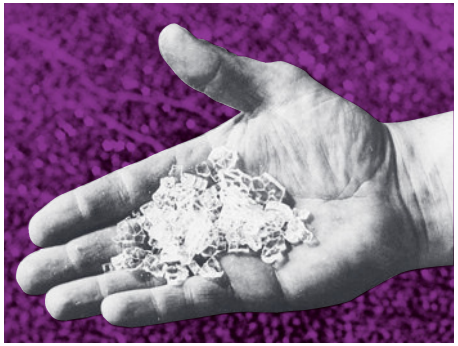
Toughened Glass safety and strength

Can you afford not to use it?

What is toughened glass?

It is glass that has been modified by thermal treatment to give:

- strength and flexibility in accordance with BS EN 12150.
- safety – up to BS EN 12600 Class 1
- improved resistance to heat
- high strength to weight ratio
- light transmission equal to ordinary glass
- safe to handle – sharp edges are removed



If toughened glass breaks, it shatters into relatively harmless small granules.

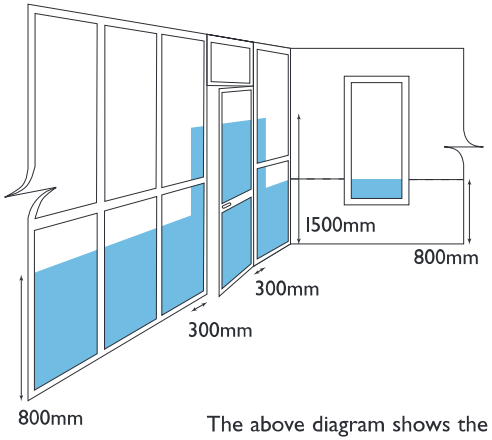
Flexible solutions for tough jobs

The unique combination of performance characteristics listed above makes toughened glass fit a diversity of demanding applications:

Safety glazing

- overhead, and low level glazing including partitions
- glazed doors
- bath and shower screens
- tables and trolleys
- furniture
- transport – cars, trains, ships
- street furniture
- domestic appliances – ovens, microwaves

Mandatory safety glazing areas



The above diagram shows the critical areas where safety glazing materials, such as toughened glass, must be used in new and replacement glazing applications in all buildings under the following law and codes of practice:

- Approved Document N of the Building Regulations
- Workplace (Health, Safety and Welfare) Regulations 1996.
- Enforced under the Consumer Protection Act 1987
- BS 6262 Part 4 Glazing for Buildings
- BS 6180 Code of Practice for Protective Barriers in and about Buildings

Marking

Toughened glass must be permanently marked to show compliance with the appropriate standard, for example:

BS EN 12150 Thermally toughened soda lime silicate safety glass

BS 857:1967, Safety glazing for land transport, or

BS AU 178a:1980, specification for road vehicle safety glass.

BS 3193: 2008 Domestic appliances

Extensive range

Transparent

- clear
- tinted
- surface coated, for insulation, solar control or fire protection

Translucent

- clear or tinted patterned

Enamelled

- Enamelled, made from ordinary glass coated with a coloured ceramic, permanently fired in during the toughened process.

Decorative/Opaque

- acid embossed
- sand blasted
- screen printed
- (Except for certain types of screen printing all the above must be done prior to toughening)

Photo Voltaics

- Solar panels for renewable energy

Other thermally treated glass

Toughened glass is the most widely used type of glass from the family generically known as 'Thermally treated' glasses. The other two most commonly used thermally treated glasses are:-

Heat strengthened glass

- This is produced in the same way as toughened glass except it is cooled at a different rate to produce less internal stress. It gives some of the advantages of toughened glass, although strength and heat resistance are less. It retains the fracture characteristics of ordinary glass. It is, therefore, not a safety glass.

Heat soaked

- A control process recommended for toughened glass used in certain specified areas (to be covered by BS EN 14179)

Note: These two products are primarily used in commercial applications.