Visual Quality

1c

TECHNICAL HELP

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Glazing Solutions

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Toughened Glass Explained

Toughened glass starts off as normal annealed glass which is then heated and shock cooled to make it tougher than normal glass and also make it break safely. The process of toughening glass is carried out to make glass more secure and safe. Toughened glass is approximately four times stronger than annealed glass of the same thickness and configuration, and must comply with the requirements of BS EN 12150: Parts 1 & 2. When broken, it will usually break into small fragments, which are much less likely to cause serious injury. This type of glass is intended for general glazing and safety glazing such as in doors, low level glazing, building entrances, interior partitions, bath and shower enclosures etc. requiring increased strength and safety properties.

The process of toughening glass is a punishing process which involves much more handling of the glass and a heating process in a toughening plant which heats the glass to over 700 degrees Celsius and then shock cools it back down to room temperature. During this process there will be several unavoidable defects introduced into the glass. These defects take many forms. To ensure that these defects are kept to reasonable levels, the glass industry (GGF) Glass & Glazing Federation has produced a document to explain what is / isn't deemed as acceptable.
See *Technical Help Visual Quality document 1a*

Double/Triple Glazed Unit Assembly

During the manufacture of a sealed unit, the glass panes are inspected several times. This inspection is done within the factory environment using artificial light at inspection areas. These inspection areas are to ensure that the operator/inspector can see what is deemed as un-acceptable defects. However, minor defects (deemed as acceptable) may not be seen at this stage but may be seen after installation during specific daylight conditions which we cannot reproduce in the factory.

There are many forms that these minor defects take such as: fine scratches, inclusions, white scars, hair lines, blisters, bubbles, roller wave, roller pick up, edge curl, pooling etc. Most of these defects are unavoidable during the toughening process and some of them will be displayed somewhere, to some degree, on most pieces of glass but there are Tolerances and Guidelines to control the level at which a customer must accept them. It must be noted that the main purpose a piece of glass is toughened is to ensure that the danger to people is kept to a minimum. Therefore small defects are the price that must be paid to ensure that peoples safety is not put at risk.

This document can be supported by reading the following: ***Technical Help Visual Quality document 1a***