


Security glazing: is it all that it's cracked up to be?

A guide to the selection of effective security glazing

Craig Devine and Richard Flint





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Executive summary

The BRE Trust-funded research project 'Security glazing: is it all that it's cracked up to be?' followed a spate of burglaries in the West End of London in 2008. The burglaries in London used 'smash-and-grab' attacks to steal expensive goods such as jewellery and designer clothing from window displays. These attacks showed that in some cases glazing offers the least resistance to forced entry in situations where criminals are not deterred from generating noise. This was further demonstrated in the 2011 series of riots in UK major cities. Whilst the project focussed on security, an associated safety issue identified was that the majority of injuries from explosive events, including terrorist attack, invariably result from flying glass particles. As such, the correct specification of glazing to resist attack and reduce injury is vital.

Standards are critical to the selection of an appropriate product. However, in the case of glazing a number of different standards have been developed based upon specific test requirements. For example, glazing under test may be subjected to a simulated manual attack or impacted by a known mass at a known velocity. The results of such tests are not always directly comparable with those of tests conducted to other standards. An understanding of which standard is best suited to a particular application is therefore useful.

This publication has been produced from a BRE Trust-funded research project to investigate the performance and safety of glazing in security applications. It outlines the different types of glazing, guides the reader through the maze of applicable standards and offers advice on selecting glazing systems appropriate to their intended use.

1 Introduction

One of the most common forms of glass is that used in windows and doors. Glazing not only allows natural light to permeate into buildings, it must also keep the elements out and help to maintain a comfortable environment within the building. Glazing also needs to provide a host of other performance attributes, including acoustics, fire resistance and security.

This guide was primarily developed to aid the selection of effective security glazing. It will help architects, consultants, police officers and others who advise people on the selection

of effective security to determine whether the glazing provides an equivalent level of resistance to forced entry by criminals as that provided by the building elements into which the glazing is fitted.

Whilst the focus of this guide is physical security and, in particular, the resistance to manual attack of different generic types of glazing, the guide also contains advice relating to those other performance attributes.

2 Background

The BRE Trust-funded research project 'Security glazing: is it all that it's cracked up to be?' followed a spate of burglaries in the West End of London in 2008. The burglaries in London used 'smash-and-grab' attacks to steal expensive goods such as jewellery and designer clothing from window displays. In one such incident, over half a million pounds worth of jewellery was stolen, with the attack taking place in full view of the public on a busy high street during the middle of the day.

The project involved market research, literature reviews and product testing. That is:

- Crime figures were studied to determine whether glazing was being targeted in a significant portion of burglaries or just unique cases.
- Existing guidance on burglary protection measures and, in particular, security glazing was reviewed to determine the nature of the recommendations it presented in terms of the selection of glazing to protect property from burglars.
- A number of domestic and international standards were examined to establish how security glazing is classified and what tests are conducted in order to validate those classifications.

The main results of the market research and literature reviews are summarised below.

2.1 Glazing in crime

Crime statistics are published annually by the Home Office. Data from the British Crime Survey 2010/11^[1], summarised in Appendix A.2, indicated what entry methods were used by burglars.

The data indicated that once figures relating to unsecured doors and windows were omitted, glass was targeted in up to 25% of burglaries on secured premises where the burglar used a degree of force to gain entry (Figure 1). This figure depended on whether the door panels attacked were glazed or were formed from opaque materials such as timber or PVC-U.

Statistics collated within the British Crime Survey 2010/11, together with data available from other sources^[3], suggested that attacks on the glazing were second only to those that involved forcing open a complete door or window in order to gain entry. This assumed that statistics involving unsecured doors and windows were excluded from the analysis.

A study by Pascoe and Harrington-Lynn, *The role of windows in domestic burglary*^[4], examined the role that windows played in preventing burglary. It found that glass was broken in 29% of burglaries. The glass was broken in one of two ways: either the burglar directly targeted the glass, or the glass broke as a result of loads applied to other elements. Glass within strong and rigid window frames was targeted directly far more often than glass within frames that were formed from less resilient materials.

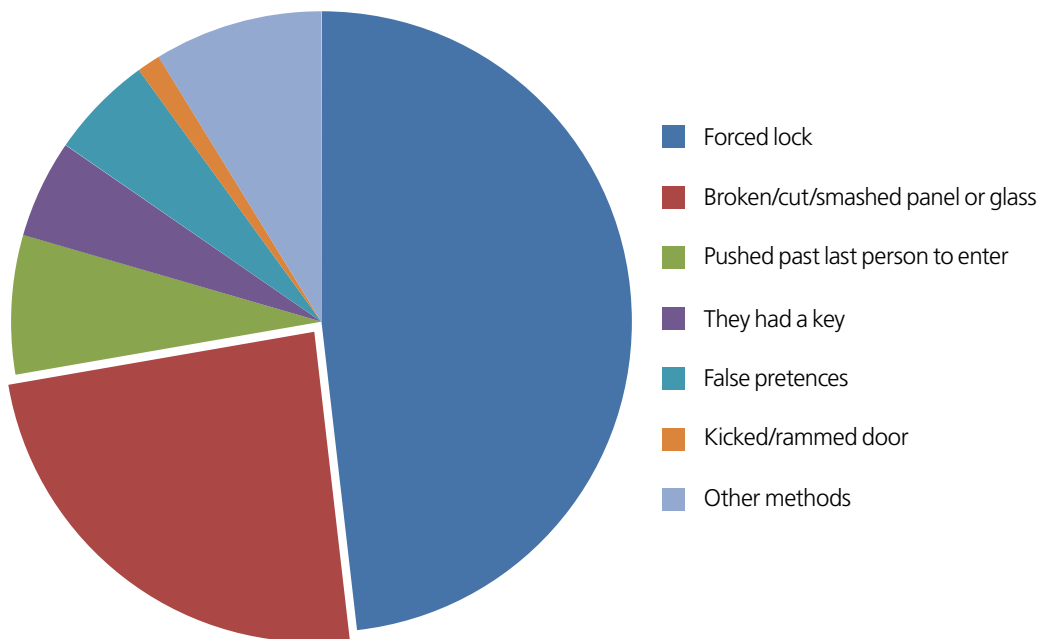


Figure 1: Methods of entry used on windows and doors of domestic properties in England and Wales 2002/03 to 2010/11
Source: *Crime in England and Wales 2010/11: supplementary tables*^[2]

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