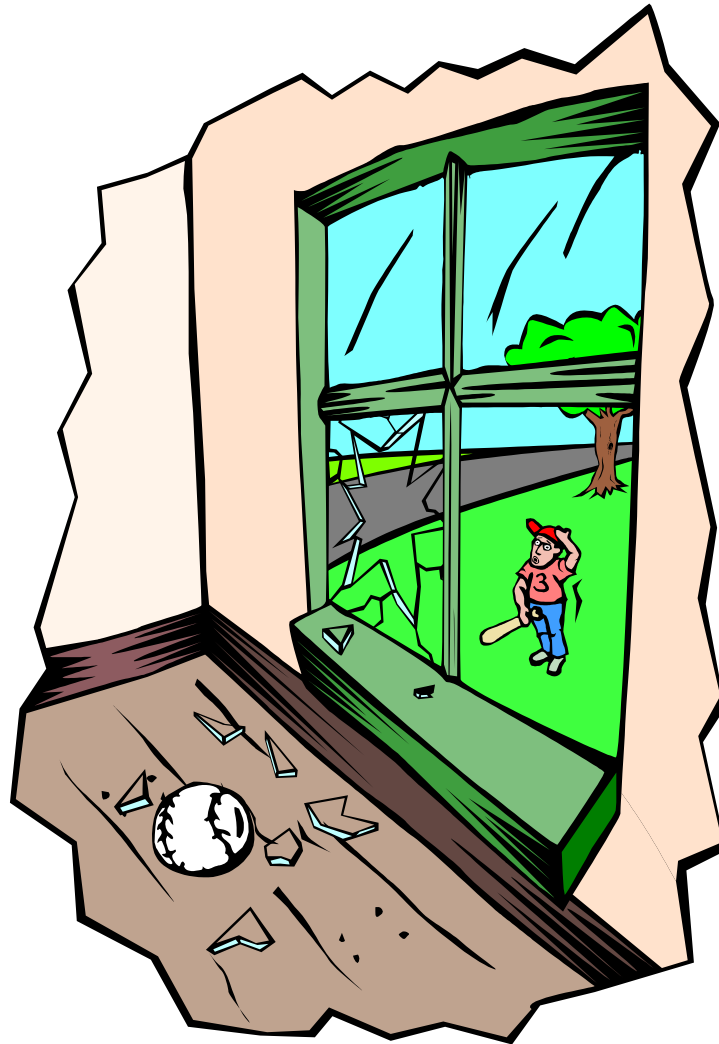


Glass in School Buildings

(The current status and suggested strategy for the safe management of glazing in schools and other public buildings)



An FPS Report in conjunction with
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1.00 Purpose of this report

The purpose of this report is to recommend a strategy for the safe management of glazing in schools and other public buildings. This report also acknowledges work to manage the risk from glass in schools and highlights the current situation, more than twelve years on from the first safety filming installations.

2.00 Executive Summary

Health and Safety legislation requires that the managers of schools and other establishments should undertake glazing surveys and risk assessments. The risk from accidents involving glazing is high, and claims arising from injury or loss of life are very costly and can bring unwelcome media attention. Managers should expedite repairs arising from survey findings, or otherwise manage the risk in a reasonably practicable manner. Window filming is designed to meet the requirements of regulation 14 of The Management of Workplace Regulations 1992. Survey records of glazing, where they exist, are now invalid, owing to alterations in building stock and typically general failure to up-date records.

Nationally, glazing surveys of schools were undertaken in the 1990s. Since then warranties for window filming have expired. It is known that window filming, subjected to direct UV light, requires re-filming where testing shows that existing film has failed. Schools may generally be unwilling to pay for specialists to inspect and repair their glazing, preferring instead to spend their funds on classroom equipment such as books and teaching aids. Accordingly, the recommendation of this report is to repeat the exercise undertaken by many authorities in the late 1990s and to expedite works arising, paid for from strategic funds. However, the author of this report appreciates the diversity of arrangements in authorities since the Local Management of Schools (LMS) and for some this is not a suitable solution. However, due to vicarious liability this subject remains a strategic issue for most authorities.

Records of surveys should be retained on site in authorities' asset management registers and health and safety files. All records should be up-dated accordingly, to avoiding a repeat of this exercise in the future. However, the question remains, what should be done when the new film deteriorates, as of course it will?

3.00 Background

The Workplace (Health, Safety and Welfare) Regulations 1992 (regulation 14) requires the upgrading of all glazing in critical areas to that of safety glass. Where glass does not meet the European standard for glazing EN12600 3B3, applying safety film to the glass should prevent accident or serious injury from impact damage. Critical areas include

1. Doors and side panels 1500mm above floor level and 300mm either side of the door;
2. Internal/external windows and partitions 800mm from level;
3. Glazed balustrades;
4. Wet areas (showers changing areas and swimming pools); and
5. Other risk areas. See **Appendix A**.

Councils undertook a programme of glazing risk assessments and remedial works when the regulations came into force on 1 January 1996. Schools and other high risk premises were treated.

The absence of glazing risk assessments suggests schools are no longer compliant with the workplace regulations. Risk assessments should now be instigated, immediately followed by a programme of remedial works. Detailed information from schools about compliance with the regulations is generally not readily available. It is therefore advisable to re-survey schools, particularly as there is a risk from non-compliant glazing. Typically, non-compliance could exist in instances where fire safety glass has been installed and other safety aspects ignored.

4.00 Legislation

Workplace (regulation 14) requires a risk assessment of glazing focusing on the extent to which it poses a risk dependant on its location within a building. There is a duty of care, imposed on employers and authorities, to ensure the safety of its employees and all other persons using their building facilities. There is potential for expensive insurance claims arising from personal injury from broken glazing which is unprotected from splintering caused by impact damage.

The regulation also requires the application of manifestation graphics where a risk assessment identifies a need to make the location of glazing apparent, e.g. patio doors. There is a similar requirement under the Disability Discrimination Act 1995.

5.00 Current Issues

Twelve years have elapsed since the first safety filming installations. Products were initially given a 7 year guarantee, which was further extended to 10 years soon after. The guarantees are now expiring, exposing an increasing risk that window safety filming is defective and no longer fit for purpose. This doesn't mean the product has failed universally but typically, safety film applied to areas of high solar UV exposure could now be defective. The glazing film tends to fail due to the attack of UV light on the adhesive that fixes the film to the glass.

There is particular concern about toughened glass which is not kite marked. The mark confirms its authenticity. It can be tested to see if it has had heat treatment, but its compliance with British Standard for safety glass cannot be ascertained. In this instance filming is an appropriate solution.

6.00 Known Problems

- Degrading and failure of applied glazing film to south and south-west facing elevations.
- Where incorrect glazing has been installed and where filming is not optional or practicable, replacement glazing is required.
- Unmarked toughened glass. (All safety glass should be clearly 'kite' marked.)
- Manifestation graphics should be applied where glass in doors, gates, partitions and windows should be made apparent.
- Non compliance with the Disability Discrimination Act 1995.

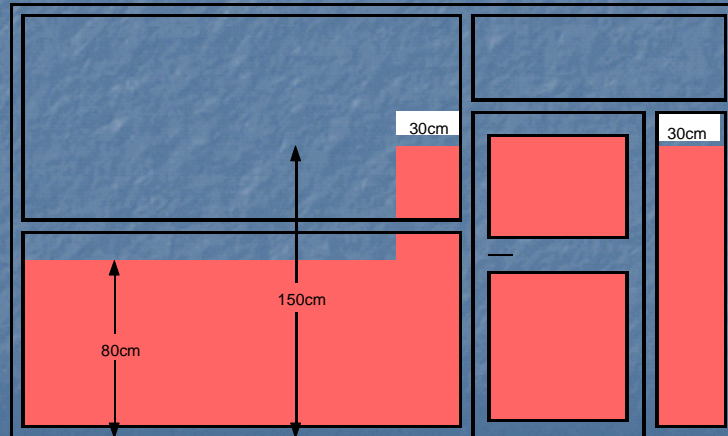
7.00 Costs

Primary school sized buildings cost on average £150 each for survey and remedial works. Secondary schools cost around £700 depending on their size. This cost estimate is derived from an exercise conducted by a borough council, which is located in central Southern England. Their cost estimate was £1.25/ sq metre GIA and includes the cost of risk assessment and production of related records.

8.00 Recommendations

- A programme of risk assessment testing and window filming should be expedited to ensure compliance with the Workplace (Health, Safety and Welfare) Regulations 1992, (regulation 14).
- Results should be recorded for every property in the authority's Asset Management Register. The data should be used by surveyors and designers when considering and arranging works.
- Surveys should be up-dated regularly by local arrangement, avoiding the need to carry out a similar wholesale exercise in the future.
- Initial glazing surveys and window filming were generally conducted in late 1990s and funded from strategic maintenance, where arrangements permitted. Otherwise, schools were left to their own devices to meet legislation. Some schools will therefore be unwilling to agree to fund a round of inspections and window filming. The unquantifiable risk therefore remains extant, inviting costly claims arising from injury or possible fatality. Authorities should therefore fund all of this work from strategic maintenance and ensure the risk is properly managed and recorded.
- For Voluntary Aided and some Foundation Schools, a contribution to the remedial works may require negotiation.
- The programme of inspection, risk assessment and remedial works should be extended to all remaining occupied, and some unoccupied premises, of the authority.

Critical Locations



Recognised Risk Codes

- Risk Code 1 Glazing in doors and side panels within 300mm up to 1500mm from finished floor level (FFL).
- Risk Code 2 Low level glazing up to 800mm from FFL.
- Risk Code 3 Glazing in Balustrades.
- Risk Code 4 Glazing in Wet Areas.
- Risk Code 5 Areas of Special Risk.

Risk Codes and Managing the Risk

The codes used when assessing risk from broken glass is illustrated above. They assist with the location of glazing and whether it complies with BS6206 or the now European Standard EN12600. Where glazing is compliant, no action is required. Where glazing fails to meet the standard, the Workplace Regulations require that:

- There is a permanent screen installed to shield people from potential contact with glazing;
- The glass is replaced with laminated or toughened material that meets the required glazing standard;
- A safety film is applied to the glazing to upgrade it to meet the European Standard.
- Manifestation safety film is applied where there is risk of collision with large expanses of glazing.

The most reasonably practicable solution is to apply a window film which constitutes about one third of the cost of re-glazing. Window filming is also less disruptive than re-glazing.

Any enquiries about this report or issues around this subject please contact :

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