

BATH AND WELLS DIOCESAN ADVISORY COMMITTEE

GUIDANCE NOTES ON WINDOW GUARDS

INTRODUCTION

1.1 ORIGINS

This brief paper, dealing with the protection of church windows against vandalism, is based on experience gained over many years.

It is important to distinguish between the protection of windows against casual vandalism, with which this paper deals, and deterring deliberate criminal entry. This latter topic is not covered by the present paper.

1.2 MOTIVES AND AIMS

Consideration of guards comes about, not for commercial reasons, but entirely as the result of a real desire to protect windows in the best possible way. Responsibility to the building is paramount and any system of protection used must show the greatest regard for the architecture and must do as little harm as possible to the fabric, both in the short and long term. A good test of the latter is to look hypothetically forward to happier times when the guards could be taken down again. At that future time there should be little trace of there ever having been guards in place. The process should be “reversible”.

It should always be established at each church whether it would be feasible not to have any guards at all. All guards compromise the architecture to a greater or lesser extent; the only real solution to the problem of vandalism is to attempt to re-educate those responsible. There is evidence to support the theory that attempts at providing security actually encourage the acts of destruction. For example, if some but not all windows are guarded, the attacker’s interest is drawn to those unguarded.

WIRE GUARDS

2.1 GALVANISED FERROUS METAL

Whilst in many ways wire guards provide a useful solution to the problem, there are many associated difficulties, as follows:

- They call to mind an industrial building, or maybe a jeweller’s shop, and seem inappropriate for a place of worship
- The feeling that they are out of context is worsened if a silver/grey finish is used
- Unless regularly maintained, they will rust and this can cause serious staining to stonework. The damage can be irreversible, short of major stonework repairs. We know of a case where rust had penetrated 32 mm into the stonework

- They can be visible from the inside, looking out: in the case of leaded-lights, the building becomes a “cage”; and in the case of stained glass, the artist’s work is compromised by a grid of unwanted lines.
- If fitted over whole multi-light windows, including mullions, tracery etc, the appearance is further worsened; but if fitted to each light separately, they are then inevitably closer to the glass. This has two consequences; they are even more visible from inside and, since they are flexible, a heavy blow to the centre of a close-fitting guard can still cause damage to the glass
- They reduce the transmitted light
- They do not give protection against someone armed with an air-gun or with a hammer in one hand and a spike (eg a screw-driver) in the other.

2.2 NON-FERROUS WIRE GUARDS

The main advantages and disadvantages of guards in non-ferrous wire are as follows:

- All of the objections listed above apply equally to copper and stainless steel guards. The only difference is that the staining of copper will be green rather than red. (For a glaring example of this, look at Tewkesbury Abbey, which has been seriously disfigured by the use of copper)
- The cost of guards in copper or stainless steel is much higher than those in galvanized steel
- Good quality stainless steel wire guards eliminate the staining problem. They have a pleasing way, in time, of taking on the colour of their surroundings
- A word of warning about stainless steel guards is that, because the raw material is much more expensive than galvanized wire, manufacturers will sometimes skimp on the specification and produce a guard lacking in rigidity

2.3 POWDER-COATED WIRE GUARDS

The technique known as powder-coating gives good protection to ferrous-wire guards and offers a longer life-span than the galvanizing process. There is a real architectural advantage to the black finish of powder-coated guards. The outer surface of stained glass naturally has an overall black finish and so the guards to some extent “disappear”.

The top of the range wire guard is one made of stainless steel and powder coated in black!

POLYCARBONATE GUARDS

3.1 POLYCARBONATE GUARDS – INCORRECTLY DESIGNED

When shields of polycarbonate sheet were introduced, we saw a number of grave mistakes made, both in the design of the guards and the fittings. Amongst these were:-

- They were being fitted in large sheets, covering stonework as well as glass. This was aesthetically and technically unacceptable. Sometimes sheets of only 4mm thickness were used.
- Due consideration of the large coefficient of expansion (0.5%) was not given, so that buckling and damage was occurring. Although polycarbonate is virtually indestructible by the action of external forces, it can break itself up, if restrained, by the internal forces of expansion. There is also potential for discolouration as the material ages
- Buckling led to dreadfully distorted reflections of light
- Fittings used were of poor quality materials, such as aluminium
- Sheets were sealed into the wall or into frames, thereby producing unventilated cavities. Often the frames were of poor quality materials. (Possibly the function of protection against damage was confused with that of double-glazing). Sometimes the polycarbonate was introduced as an alternative to restoring a leaking window.
- Large sheets, fitted by contractors with all their plant and man-power, were difficult to remove for access

3.2 AN ATTEMPT AT OVERCOMING THE TECHNICAL PROBLEMS

Despite all the errors listed above, there is potential in polycarbonate as a material if the following standards apply:-

- The guards are made of 6mm thick Makrolon polycarbonate sheet
- The guards are cut to exactly the same shape as the "sight-size" of the glazing; all stonework is exposed and the area of reflection is reduced to a minimum and confined to areas where, visually, glass is expected anyway
- They are fixed on brackets of unpolished stainless steel with fittings of stainless steel and nylon. The fittings allow for the expansion of the polycarbonate. No frames are used.
- The guards are made in small sections which can be removed for access if needed and which allow for a free flow of air all round, thereby not encouraging the problems of condensation or the growth of organic matter. Each section of polycarbonate might be, say, only 36" x 18" and, conceptually, these small units relate well to the other "building bricks". Thus, the modern materials are at least odds with the architecture of the building
- The design in the above paragraph also allows for expansion with temperature

3.3 REMAINING PROBLEMS

We are of the opinion that, where there is a feeling against polycarbonate, this is often based on an experience of guards which are badly designed and fitted. Nevertheless, there remain some drawbacks, as follows:-

- The reflection of light, at some angles gives the building an unpleasant "blind" look. This is somewhat more acceptable if the plane of the sheet material is

preserved and the reflections un-distorted. The problem is not so apparent at the more sheltered windows of the church.

- The polycarbonate sheet could, presumably, be deliberately scratched or sprayed with paint or chemicals but, to date, we are not aware of this having happened.
- Unlike wire guards, the long-term properties of polycarbonate guards are not known. An investment in these might well be not as sound as an investment in stainless steel wire guards which are likely to put in at least a hundred years' service.

THE OPTION OF NOT GUARDING

4.1 WHERE APPROPRIATE

The deliberate policy of leaving windows unguarded is a sensitive matter and each case must be taken on its merits. At the two extremes, leaded-lights could well be left unguarded, whereas particularly rare or beautiful stained glass should always be guarded. Again, guarding is more appropriate in some localities than others.

4.1.1 SUPPORTING MEASURES

- For this approach to be effective, it must be accompanied by an untiring but rewarding campaign aimed at helping the offenders.
- The church should have in safe keeping a thorough photographic record of the stained glass, preferably in the form of colour slides, both of overall views and details. It is both more feasible and less costly to repair a stained glass window if photographs exist.
- The Churchwardens and cleaning volunteers should be made aware of the importance, following a breakage, of collecting and saving every fragment of broken glass and lead, both from inside and outside.
- The Church should review its insurance cover

CONCLUSIONS

5.1 PREFERRED METHODS OF PROTECTION

No design of guard is perfect. The only completely acceptable state of affairs would be to have unguarded windows in the context of a society whose members were not reduced to causing damage.

Our order of preference is:

- 5.1.1 no guards at all
- 5.1.2 black, powder-coated steel wire guards
- 5.1.3 depending on the context, either correctly designed polycarbonate or stainless steel wire guards (preferably black finished)

5.2 COSTS

Polycarbonate and stainless steel wire guards are of approximately equal cost; galvanized wire are the cheapest. Powder coating adds about 5% to the cost.

This paper is based on a Chichester DAC paper, adapted from a paper by David Lawrence, B Sc, Ph D.

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