

*Your "Need to Know" guide to Lighting Stained Glass*

# ***Picture the Light***

*By Neil Wilton*

*The definitive book on framing and lighting stained glass.  
(Abridged Digital Version)*

***Full Length Paperback Book Available***

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[www.thestainedglassdisplaycompany.co.uk](http://www.thestainedglassdisplaycompany.co.uk)

# *Foreword*

Neil has made and commissioned numerous stained glass panels and windows over many years, which has given him invaluable first-hand knowledge and understanding of the complexity and requirements needed to do this difficult job well.

Each stained glass project and installation undoubtedly present new challenges, yet in every case Neil has managed to produce splendid displays, which are always sensitive to the conservation requirements of this fragile medium.

Allowing stained glass to become part of interior design again, without having the necessity to fix it back into a window, is particularly inspiring. It is also much more rewarding to rescue orphaned stained glass for future generations to enjoy.

This should appeal to interior designers and architects alike, who will find inspiration in Neil's work. Neil is as passionate about reviving interest in the magnificent art of stained glass as he is about finding the solutions necessary to display it well, for which he is to be heartily commended.

Nick Teed ACR, Conservation Manager, York Glaziers Trust

# *Introduction*

Over the past 30 years I've seen many different ways of displaying stained glass. Many of these have been in their intended original location in windows, churches, cathedrals and grand buildings. Others are in windows and doors in ordinary everyday houses.

It's when stained glass has been relocated and housed for display purposes that it becomes obvious that it was probably better displayed when it was still in its original location, probably a window or door.

With so much high-tech knowledge available today, the challenge is not if it can be done, but how is it done. It is perfectly possible for a handy person to have a go at framing and lighting stained glass so it looks nice. There are, however, many things to consider that are not obvious to the inexperienced. Accommodating these critical things will almost certainly be the difference between a framed illuminated panel and a safely framed, conservation-friendly panel that will squeeze every ounce of beauty from stained glass whilst housing it safely and securely.

# ***Condition and handling***

## ***Condition***

Before you decide how you are going to frame your stained glass, you need to take into account its condition. Once stained glass has been removed from a window or its original frame, it is vulnerable. This wooden, metal or stone frame once held the stained glass securely.

There is a very high likelihood that when the stained glass was removed, the process of removal would have damaged the perimeter lead.

This will often have to be replaced as it is critical to the security of the stained glass once it is framed again.

If you're looking to frame and display any kind of stained glass that is not already brand new, look carefully at its condition, in regard to its aesthetics, and also in regard to how strong, solid and original it is. So you need to take a good look at your stained glass and decide if it's strong enough and nice enough to display as it is.

If you take a general overview of the stained glass, assuming it is not perfect, you will need to decide what can be done to improve or repair it, and who is going to do this for you.

So you need to decide what needs repairing and how. It may be possible to display stained glass even though it has some faults and damage, and the answer in these cases is to disguise the damage. The last thing you want is to highlight damage, for example cracks, by having bright light glinting through the cracks.

## ***Wires and Saddle Bars***

Saddle bars are usually steel or lead covered steel rods about a quarter of an inch thick. They can be round or square. They are fitted to the back of stained glass panels with external wires wrapped around them. The rods are secured in the frame or housing of the stained glass and the wires are soldered to the back/inside of the stained glass. The intention is to stop the stained glass panel moving backwards and forwards in the wind or from movement, as in a door.

You probably won't need these attached to your stained glass when you frame and display it. There are several challenges associated with saddle bars.

The first is that they are obstructive when you decide to frame the stained glass and probably unnecessary because wind will never buffet the panel in its new location.

The second is that they affect the appearance of the stained glass by imposing a quarter inch line across the centre of the design. Sometimes this is at a joint between two panels so is not visible. More often it is right through the design and spoils the artist's affect. So I try to avoid using saddle bars wherever possible when framing and lighting stained glass.

The third challenge is that if you simply snip off the wires that held the saddle bar to the stained glass you are left with the soldered joints with sharp wires sticking out. And they will be on the front of the displayed panel, which will interfere with appearance and cleaning with cloths. So these will need to be removed with a soldering iron and appropriate skill. Then the lead will need to be dressed and finished so the panel looks as if wires were never attached in the first place.

### ***Handling orphan panels***

In my experience, most people are frightened to handle stained glass when it's not in a frame - and for good reason.

It's best, wherever possible, to lift stained glass vertically by gripping a vertical lead at the top of the panel with each hand. Don't lift by the perimeter lead as this is likely to pull off. Watch out for loose pieces of glass around the outside that may drop and break. Picking it up vertically can be difficult if the panel is not standing up already. It is quite likely that it is lying flat, possibly on a board. If it's on a board and you can carry the board it may be best transported flat. If you need to lift the panel up you simply support the panel and tip the board up. Then you can get the edge of the panel to lift it. What you don't want to do is try to lift a flat lying down panel by an edge without supporting the middle and rest of the glass. It will only bend, crack the glass and damage the leads.

# *Basic Display Types*

Let's take a look at what people had as an option a few years ago and what people have as an option today.

## *Hanging in a window*

If you consider that stained glass was originally designed to be fitted in a window and to be illuminated by natural light, it would make sense to try to replicate this scenario. But stained glass hung in a window can look a bit cheap and nasty if not done with thought and care.

At its simplest you can attach a couple of wires to the stained glass panel and hang it in a window. If this is what you would like to do there are one or two things to consider. Firstly, you will have to attach the panel to hooks or eyes at the top of the inner window frame. This would have to be strong enough to take the weight of the stained glass. When attaching wires to the stained glass panel, the strongest attachment is to solder copper wire in a loop extending it to the vertical lead on either side. If you attach it to the top lead only you may find the lead pulls away and breaks (see illustration). If your skills don't extend to soldering, you will need somebody to do this for you.

Another popular method is to make a wooden frame around the stained glass, rather like a picture frame. When attaching eyelets or hooks to this frame pay particular attention to how strong the joints are on the wooden frame. Care must be taken not to screw into the end grain as these will pull out over time.

You can join the panel hooks or eyes attached to the stained glass, to the hooks or eyes in the frame by means of chain or strong wire. Whatever appearance you are

aiming for, you must consider that the stained glass will be heavy. If the stained glass falls, somebody could get hurt and you will damage the panel.

Another consideration is to mount the stained glass just away from the glass in the window. You don't want the stained glass panel resting on the glass of the window. It is possible for the stained glass to rattle if vehicles drive past or any shaking occurs.

If your windows are a modern plastic framed system it is a big display challenge. It is quite hard to mount stained glass in front of PVC double glazed windows in the modern home; this is probably better wall mounted. It is difficult to find a way to hang it without drilling and thus permanently marking the plastic frames.

### ***Mount in the Window***

If your stained glass panel is the same size as the window you would like to display it in, you could build a false frame inside to mount it in. If this is a permanent fixture you will not be able to access the original glass as it will be boxed in. You may experience condensation and large temperature swings within the void between the two glass surfaces. This could lead to damaging the stained glass and the wood in the window. On the upside it is a very cheap way to display and secure your stained glass. On the downside it will only be illuminated during the daytime.

If you fasten it to an opening sash window there will be an issue with additional weight to the moving sash window.

If you fix a secondary layer of stained glass into a sash window, it will upset the balance of the window. For example, the sash weights were chosen to counterbalance the weight of the frame and glass before you mounted additional



stained glass into it. This extra weight will mean the window is harder to open as it will be heavier. It will tend to close too easily because of this extra weight.

### ***Moisture and Element Protection***

A major problem with mounting stained glass inside a window opening is the potential for condensation and cold and hot temperature variations. Stained glass doesn't like temperature change as it damages the cement and to a degree the paint work. It is especially important to allow for ventilation to occur naturally, particularly in locations where it will be subjected to extreme heat (sunshine) followed by extreme cold (frost).

### ***Health and Safety***

It can be quite dangerous to hang stained glass in a window. There are quite a few things that can go wrong from a health and safety point of view. The same problems could prove to be the end of the stained glass panel. Typically these involve inadequate mounting of the stained glass to the window frame by perhaps weak or fully fitted hooks. Poor choice of material with which to hang the stained glass can result in the panel falling and perhaps injuring somebody. Chain tends to be quite a good strong medium, with string and fishing twine being less than satisfactory. How you attach the chain to the stained glass panel can be a very risky decision. A properly soldered-on copper wire should be more than adequate for each corner at the top. The wire should be attached to the side leads in a vertical manner so all the force from the weight is taken by the side lead. If you attach the copper wire to the top lead, over time this may pull free, causing the panel to fall.

If the panel is set back in a window it is unlikely to be knocked or disturbed. It is unwise to position stained glass in a window at the foot of the stairs, where it might

be possible to stumble and fall into it. Similarly attention must be given to the risk of it falling on somebody if it is mounted above head height. An example of this being stained glass hung above the front door behind the plane transom glass. Any weakness in the hanging of the glass will be magnified by the movement of the door and any drafts or winds caused by opening and closing of the door.

### ***Traditional old style wall displayed stained glass***

The sort of location where stained glass was originally displayed indoors would be a museum exhibition or something similar. The stained glass was important enough to be considered worthy of building a special display, and it would be backlit by bulbs. In recent years bulbs were replaced by strip lights. Neither of these were very good at replicating natural daylight. In addition, the stained glass would either be mounted in an opening in an internal wall where lighting could be fitted behind it, or a very deep box frame would be constructed to house the bulbs or strip lights. Provision would have to be made to allow access to the electrical installation so that bulbs could be replaced. As bulbs and strip lights generate quite a bit of heat, it would be necessary to provide ventilation from this boxed in frame. The heat generated would be detrimental to the condition of the stained glass, and the construction, which would be probably lightweight wood of some kind, would contribute to the deterioration of the perimeter lead.

More recently, strip lights have been available in more natural lighting ranges and have also been cooler running. The most recent LED components are available in light wavelengths, closely approximating natural light. Additionally, they are bright enough to sometimes require dimming, and of such low-power that simple heatsink technology can keep them very cool.

As a result of these developments in lighting technology, it is possible to design and make a frame that will support the stained glass and illuminate it - all within the frame and satisfying conservation requirements.

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