

## Tips on Taking Pictures of Your Church's Stained Glass Windows

### *Introduction*

www.welstainedglass.org is dedicated to the stained glass windows found in WELS churches. In general I have limited myself to taking pictures of the tradition "leaded" glass as opposed to the kind of glass that is made up of large stones held together with resins.

### *Getting good results*

Here are some basic instructions for taking pictures of the stained glass windows in your church. If you have questions about any of these instructions, please feel free to email me at [rkoester@midco.net](mailto:rkoester@midco.net).

In the discussion below, I am assuming a fairly complicated shoot in a church with large side or front windows, a balcony, and windows hidden from view. This will give me a chance to cover all the aspects of photographing stained glass windows I have encountered.

Your church may be much simpler and may require merely going from one window to the next and photographing it. Also, your intent for the photographs—images just to keep on your phone, for example—will determine how many of these instructions you will find necessary. Even so, if you can find a tip or two, that's great.

This document does not contain much advice on manipulating the images in your imaging software, Photoshop, or whatever imaging software you use. This is an important part of stained glass photography that you'll have to explore on your own. If you wish, email me with questions on this.

### *Getting ready*

1. Which camera should you use? If you have digital DSLR camera, that will work best. The higher the camera's resolution, the better. If you have lenses that cover 35mm and up (200mm is not too high) you will be able to take pictures of the majority of windows. The 35mm setting may be necessary in close quarters. However, sticking to 50mm and up will yield pictures with the least distortion.

When I was spending more time on stained glass photography, my kit included a 35-70mm zoom, an 80-200mm zoom, a 1.4 teleconverter, a 28mm shift lens, and a very compact 28mm prime lens. This and the camera could all fit into modest camera case. I also used a heavy duty tripod. And I brought along extension poles as explained below.

If you plan on manipulating the images in Photoshop, take RAW images. If your DSLR allows you to take RAW and JPG images at the same time, use that setting. It might make it easier to view the contents of your folder. Otherwise, take the highest quality (largest) TIFF or JPEG images your camera will create. TIFF is best. JPGs work, but they compress the image and therefore lose some of the information your camera captures.

If you plan on sending these images to me for use on my web site, I can use Nikon RAW images. Otherwise, send TIFFs or the highest quality JPGs your camera can take.

Be sure to put your camera on a tripod and turn off the image stabilization on your lens. Using a tripod will allow you to use your camera's lowest ISO setting, shoot at a normal F8 setting, and not have to worry about long exposures. Exposures of several seconds are common. This will assure the sharpest, most noise-free photos possible. Use a shutter release or the exposure delay feature on your camera. If you take these precautions, your images will be sharp.

What if you only have a phone (or a tablet)? If your phone is fairly new, it will create very usable images. Set your camera on the highest resolution (largest) JPEG setting. If it creates TIFF images, all the better. If you can put your phone or tablet on a tripod, the images will be better for the reasons noted above. If you

have image stabilization, a careful, handheld shot will sometimes be fine. But your camera may adjust the ISO setting so high that the photos becomes grainy.

2. If possible, choose a day with a bright but overcast sky. Bright, diffused light is best. Even rainy days will work. Don't shoot on a sunny day. To our eyes, the windows look nice. But you will have to fight sunlight coming in through the windows along with the high contrast between the windows in the shade and those in the sun. A bright point of light coming through a pane of glass or a window partly in the shade and partly in the sun is difficult to fix. If you don't have a choice and must shoot on a bright, sunny day, you will have to spend more time in Photoshop. Try to position yourself so the sun is behind the wood frame (in a large window), or try to locate it behind a very dark pane of glass.
3. Be sure to shoot with all the interior church lights off. Interior light can reflect off the leading and will light up the walls around the window and the interior woodwork. Let your camera adjust the exposure using only the light coming through the stained glass window.

### *Organizing your activity*

4. Be sure you know where all the church's stained glass is located. It is best to take a walk around the outside of the church building. All the glass mounted in the exterior walls should be visible from the outside. Note that a few churches have glass mounted on interior walls. Be careful not to trust that the pastor or member knows where all the stained glass is located. Most know this, but some don't.
5. Before you begin, get a record of all the windows. Take a series of snapshots (no tripod necessary) of the church's interior. I begin at the altar and shoot in a clockwise direction all around the church. If there are windows that are not visible from the main sanctuary, (over the back entry, in a side room, in the balcony, etc.) try to take those pictures in the order they would appear if they were visible. Later on, this will provide a frame of reference for organizing your photos.
6. Once you have a record of where the windows are located, you can begin anywhere you wish. If possible, I try to take all the windows that call for a certain lens, and then change lenses and move to other windows.
7. Don't do more work than you have to. Assess your needs. Are you taking the pictures to have a digital record of the windows in your church? Or will you be printing them? If so, how large do you want your prints to be? If you are taking pictures to view on your phone or computer screen, or to print in a relatively small size, a simple snapshot of the entire window will do. But if you want the capability to make a large print, you'll should plan to capture enough pixels to do that. In other words, you will want to take the window in sections and then stitch the sections together in Photoshop. The number of sections you take depends on the size of the window and your camera's resolution.  
I also plan on making a 13x19 image at 300 dpi. I have a 36 mega pixel camera. So I can shoot fewer images than I did earlier with my 6 mega pixel camera. These needs are the context for the tips below.
8. Be sure your lens will yield a rectangular image. I'm referring to the fact that some lenses bow the sides of the image in or out. This is not noticeable when you taking a normal photograph. But when you are taking pictures of shapes, and especially if you are stitching them together in Photoshop, even a slightly bowed image is a nuisance. Such images can be fixed, but it takes time. It's better if the edges are straight right out of the camera. (I purchased a cheaper lens one time and had to exchange it for a better one just for just this reason.)

### ***Photographing basic, easily accessible windows.***

9. This applies to most windows. Take a picture of the whole window, filling as much of the frame in your camera's viewfinder as possible. Churches often have long thin windows. In those cases, depending on the resolution of your camera, you might consider taking the image in two sections and stitching them

together in Photoshop.

10. Photograph larger windows in even more sections, depending on the final size and quality you need. Stained glass is often made up of panels that are separated by straight pieces of lead. When you take the sections, be sure they are bounded by those major horizontal or vertical lead lines. If your segments are bounded by these straight pieces of lead, they can be stitched together more easily.

11. If your church has a series of side windows that differ only in the symbols they contain, take a picture of one entire window as a sample. Use a window that is well-lit and that you can take head-on, that is, with minimal distortion. After you have taken that window, zoom in to the symbols in that and the other windows. You will then make copies in Photoshop of the window you took in its entirety and substitute the symbols from the other windows.

Whether or not you do this depends on a number of things. How different are the colors of the windows? How difficult would it be to photograph them individually? I try to limit the differences to subtle color shifts. If the actual design of the window changes from window to window, I try to shoot the all individually and only substitute for the windows that are difficult to photograph because they are blocked. But this depends on you and how much of a purist you want to be.

12. If a window is high up or in some other place you cannot get close to, estimate how close you are to the window and how high it is above you. A mental note will allow you to adjust the size of the image in Photoshop so it remains in general proportion to the other images. The record you shot at the beginning of your session will also help with this.

### ***Photographing large, complex stained glass***

The majority of churches have modest stained glass. The windows are uniform in size. These windows can be photographed easily with a modest telephoto lens. The church may have a large window, but it is accessible. If you take the window in sections, they can be stitched together easily. If this is the case with your church, you will be able to take the pictures with little effort.

But some churches—especially large, older churches—have more complex stained glass windows. In addition, the windows are sometimes located in hard to reach places and often have structures built over them, which were not there when the original church was built. I'll list some of the more common challenges, but I'm sure many more await the stained glass photographer.

13. Maintain the perspective.

A window's perspective refers to its actual height and width, not necessarily its height and width as perceived by the viewer. This is especially important when photographing a large window, but it applies to all windows.

To illustrate what I mean: Imagine entering a large church with a massive stained glass window facing you in the front wall of the church. It stretches above you until it nearly joins the arched ceiling. You begin walking toward it down the front aisle. Let's imagine it has a picture of Jesus coming out of the tomb. When you first see Jesus, his proportions are those of a normal human being. But as you approach him, he starts to become shorter. He is being squished because your angle of view is changing. He started out tall, but now he looks shorter. What's more, the whole window now looks wide at the bottom and narrow on the top.

Your camera sees the same thing. You instinctively return to the back of the church to photograph the window, but your experience has taught you something. Whenever you view the window other than straight on, the perspective will be distorted.

There are several ways to correct this problem. You could hang on a rope from the ceiling and center yourself on the window. Or you could use a 20' ladder and create a straight on vantage point in that way. But there are easier ways.

The most obvious is taking the photo from the church's balcony, if the church has one. The problem with this is the distance to the window. You'll have to use a telephoto lens.

Another way is to photograph the window from ground level and adjust the photo in Photoshop based on your best guess. In other words, do the people look normal rather than squished? If the window contains a circle, you can adjust the image so the circle is round, not oval shaped. Or if you know a pane is square, you can adjust the image until the square is square.

The best way is to use what's called a "shift lens." A shift lens is a special lens that has a little dial you can rotate to physically shift the front element of the lens upward, which in turn causes the image to come down in your viewfinder and appear as if you are looking at it straight on. You start by pointing the lens straight at the window with the line of view parallel to the ground. Of course, from that angle you will only see the bottom of the window. Now you shift the lens upward and watch the image rise in your viewer like magic.

I used a 28mm shift lens for quite a few of the large windows I took. You will likely not use the shift lens for the final photo. Rather, you will use the image to create a pattern in Photoshop over which you can lay the individual sections. This results in an image that looks like you were hanging on a rope directly in front of it.

#### 14. Photographing a partially blocked window.

The church may have built a balcony after the fact that somewhat blocks windows built into the original church and were completely visible when the church was new. For example, the church may have installed an organ in the balcony that blocked a beautiful back window.

Blocked windows are not impossible to take. But they usually take a lot of work. There were only two or three windows I found impossible to photograph.

Here are some general thoughts. Photograph the window as best you can to get your pattern—the window with the proper height and width. You may even have to go outside and photograph the window from across the street. Or, if the window has the same dimensions as another window that you can successfully photograph, use that as your template.

Then, start photographing bits and pieces of the window as best you can. Get as much as you can, even if some of your shots are at an extreme angle. In Photoshop, put your template image on the bottom level, reduce its opacity, and then begin adjusting and fitting the images over the template. To save your sanity, put each image on its own layer. It's kind of like doing a giant jig saw puzzle.

If there is an area of your image you were not able to photograph, cheat a little and take sections from the side you have finished, flip them over, and recreate the other side, the one you couldn't photograph. This may be the only way to complete the puzzle. Above all, when you photograph a section, always use the leading between the panes of glass. That is, don't plan on stitching together one side of a piece of glass with the other side. Make sure each piece is bounded by lead.

The challenges are new with every blocked window. You will find yourself squeezing around organ pipes, lying on your back looking up, and capturing the image at extreme angles. Take plenty of pictures so you have some usable ones when you go to stitch them together.

#### 15. Windows that are often blocked.

The lower part of a balcony window may be blocked by pews. I simply set up my tripod so I can move it along the back pew and take pictures of the hidden part of the window, making sure the images overlap. This area of the window often contains a pattern glass as opposed to pictures. If the patterns are the same in color and design, in Photoshop I only adjust one of the images or a part of an image and copy and paste that piece as needed.

The most challenging situation is when the high back of an altar obscures the bottom of the front window.

This happens more than one might think. Church members have seen their front window for years, but they have never seen the hidden elements. Sometimes it is just the same pattern glass as they see in other parts of the window. But once in a while there are actual symbols or images found there.

To capture glass hidden behind the altar, you'll need to mount your camera on a pole. They make poles (usually in smaller sections you can join together) to extend a camera's reach, which can be used for this purpose. I found used ones on Ebay. Mount your camera on the pole, set it at an angle facing at an angle downward, raise it up and lean it on the top of the altar, and start taking pictures. I usually rest the camera on the back of the altar and rotate the pole, taking images as I rotate. Sometimes the altar back is quite high and I need a ladder to reach the window even with the camera on a pole. You'll need a shutter release cable of sufficient length. After you have taken a series of shots, take the camera down and see what you're getting. Adjust the camera as necessary. I use a very compact 28 mm f2.8 lens for this work. Because the camera pole is resting on top of the back of the altar, you can take a long exposure if necessary. You'll want to set the aperture of your lens to a higher f stop so the sides of your photo remain in focus.

### *Other issues*

#### 16. Translucent glass.

Most glass is opaque. But sometimes the stained glass artist uses transparent or translucent glass. In other words, you can see the trees, houses, power poles, and cars outside the church through some of the panes of glass. Personally, I've found this impossible to correct in Photoshop. All you can do is be aware of the issue when you photograph the windows. Try to make what you see outside as uniform as possible. A large leafy tree or open sky will provide a better background than a house or a telephone pole. You'll have to move around to find the best angle and adjust the whole window in Photoshop. Or, take the whole window straight on and collect pictures of the transparent glass with a pleasing background and swap them in when you manipulate the image in Photoshop.

#### 17. Windows without sufficient backlighting.

Sometimes rooms have been added to the church. What used to be an outside wall has become an inside wall with stained glass in it. Usually the congregation has installed some lighting on the "outside" of the window, but such lighting is usually insufficient for your purposes. You can fix some of this in Photoshop by using adjustment layers and increasing the exposure. My answer was to buy a studio lighting kit and properly light the windows before I photograph them.

#### 18. Watch for ceiling lights.

Ceiling lights will often block a window. It is annoying to find out in Photoshop that a ceiling light is covering a small part of a window. It is easy to miss that in a dark church, especially when taking a photo of a window in a dark balcony. They are easily corrected. Move to one side or the other and photograph the area previously blocked by the light. You can then patch that in over the light.

#### 19. Beware of thick walls.

Sometimes churches have thick walls and the windows are recessed into the walls. If you must photograph the windows at an angle, the thick walls can cut off a slice of the image. The final picture will look out of proportion. I try to avoid this, but sometimes it's impossible to avoid. To correct this, I've occasionally had to copy a thin slice of one side of the window, flip it, and paste it over the other side.

#### 20. Blackening the walls and the wood between windows.

All windows are bordered by walls, and larger windows are set in wooden frames. These are always visible in your image. This is distracting. The goal is to make these areas pure black so the stained glass windows stand out without distraction. This is the final step in my workflow. I use the pen tool in Photoshop, outline these areas, and fill them with black. The pen tool is notoriously hard to use, but for this task I use only a couple

simple steps and with a little practice it becomes rather easy. The time it takes to do this is more than rewarded in the end.

#### 21. Helping me

Thanks for considering taking pictures of your church's windows for use on the WELS StainedGlass Web site: [www.welsstainedglass.org](http://www.welsstainedglass.org). I am more than happy to help you take pictures of your ELS or WELS church. And I would be happy to post them on my web site.

If your church is challenging, you may wish to take a quick series of snapshots and e-mail them to me with your phone number. I'll evaluate what I see and we can discuss how to go about doing the work.

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Updated 10-2-21