



WILLIAMS & BYRNE

# Glass Painting Techniques & Secrets from an English Stained Glass Studio by David Williams & Stephen Byrne

## Our firing schedules

The correct firing schedule depends on many different factors. Here are the main points that we consider when deciding what schedule to use with our own glass:

- What is the kiln like?
- What kind of glass are we using?
- What kind of paint have we used?
- What media did we use?
- What techniques did we use?
- How precious is the painted glass?
- How full is the kiln?
- What effect do we want?

Let's now look at each of these points in turn. But remember that the manufacturer of your kiln will give you all the necessary information that you need to fire your own glass beautifully.

### What is the kiln like?

**Every** kiln is different. Some have shelves; others don't. Some load from the top; others from the side. Some are electric; others are gas. Some apply heat from the top; others from the side. Some fire fairly evenly over the whole shelf; others fire hotter in one area than in another.

NOTE: TAKE SPECIAL CARE WHEN USING  
OIL-BASED PAINT (CHAPTER 6)

### What kind of glass are we using?

**One** kind/make/type of glass can be importantly different from another kind.

On top of this, with hand-made glass, one part of the same sheet may be importantly different from another part.

This means, for example, that the same glass paint might need slightly different top temperatures to get the same effect on two different kinds of glass or even on two pieces from the same sheet.

Also, different kinds of glass may require a different annealing schedule on the way down. This is where you allow the glass to cool slowly

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and regularly so as to equalise the temperature across its whole area and also to allow stress to disperse. The temperature range though which glass needs to be annealed is different for different kinds of glass. We ourselves often use an all-purpose range and schedule.

Note: if a particular piece of glass differs markedly in thickness from one edge to another (as can happen with hand-made glass), it might well benefit from a particularly cautious annealing schedule. The manufacturer of the glass will advise you on this point.

### What kind of paint are we using?

**Different** kinds of "glass paint" each need to be fired at different temperatures in order for them to become fixed. Silver stain takes the lowest firing; next comes a multitude of enamels; next come the oxide-based blacks, browns and reds that are used for tracing and shading.

### What media did we use to apply the paint?

**For** example, water-based paint dries out far more quickly than oil-based paint (see Chapter 6), so (depending on the techniques one has used, one can usually fire water-based paint quite quickly.) And, as for oil-based paint, some release noxious fumes, others release pleasant ones. With noxious fumes, one question is whether the ventilation in your workshop is good enough to cope with a rapid release of fume. Another question is whether the fumes might in fact combust with a rapid schedule: take care and consult with the manufacturer of your kiln.

NOTE: WE USUALLY HAVE THE BUNGS  
OUT OF OUR KILN UNTIL ALL THE FUMES  
HAVE FIRED OFF AND ESCAPED

### What techniques did we use to apply the paint?

**Thickly** applied paint (with water or oil) will usually benefit from a slow firing to allow it to

dry thoroughly. For example, we climb slowly to 212<sup>o</sup> Fahrenheit / 100<sup>o</sup> Celsius, then we hold there for 30 minutes before continuing.

### How precious is the painted glass?

**All** things being equal, if we've invested a huge amount of time and care in painting a particular piece of glass, we think we might as well fire it slowly and carefully.

Also, we might fire a precious piece on its own: this would eliminate the risk of another piece shattering and knocking into it as it splintered. We often do this with heads – this is because they take a lot of time and care to paint.

### How full is the kiln?

**With** some kilns, a full kiln works more slowly than a kiln with fewer pieces in it. If yours is like this, you'll need to adjust your schedule accordingly.

NOTE: ALWAYS CHECK THAT YOUR PIECES  
DON'T TOUCH ONE ANOTHER. IF THEY DO, THEY  
CAN EITHER FUSE TOGETHER OR SHATTER

### What effect do we want?

**Transparent** or opaque; shiny or rough and biscuit-like? Transparent and shiny generally require a hotter temperature than opaque and biscuit-like. If we're restoring a piece of glass, then we need to mimic a particular finish; if we're painting an original, the choice of effect is ours alone.

If in doubt, always do tests first. Have a book for noting down your observations. Be detailed in recording information. This takes time at the start, but it's time well spent in getting to know how your kiln works.

**Our all-purpose schedule for firing Reusche tracing black when tracing (Chapter 4) or shading (Chapter 3) with water-based paint**

	Fahrenheit			Celsius		
Phase	Rate per hour	Target	Hold/Soak (minutes)	Rate per hour	Target	Hold/Soak (minutes)
1	570 <sup>o</sup>	between approx. 1220 <sup>o</sup> (dry finish) and 1250 <sup>o</sup> (smooth finish)	5	300 <sup>o</sup>	between approx. 660 <sup>o</sup> (dry finish) and 675 <sup>o</sup> (smooth finish)	5
2	9999 <sup>o</sup>	1040 <sup>o</sup>	5 (depends on size and thickness of the pieces)	9999 <sup>o</sup>	560 <sup>o</sup>	5 (depends on size and thickness of the pieces)
3	50 <sup>o</sup>	986 <sup>o</sup>	0	10 <sup>o</sup>	530 <sup>o</sup>	0
4	9999 <sup>o</sup>	0	0	9999 <sup>o</sup>	0 <sup>o</sup>	0

Note: 9999<sup>o</sup> means as fast as the kiln allows

**Our schedule for firing Reusche tracing black when painting techniques involve flooding (Chapter 2) or oil (Chapter 6)**

	Fahrenheit			Celsius		
Phase	Rate per hour	Target	Hold/Soak (minutes)	Rate per hour	Target	Hold/Soak (minutes)
1	212 <sup>o</sup>	212 <sup>o</sup>	30	100 <sup>o</sup>	100 <sup>o</sup>	30
2	570 <sup>o</sup>	between approx. 1220 <sup>o</sup> (dry finish) and 1250 <sup>o</sup> (smooth finish)	5	300 <sup>o</sup>	between approx. 660 <sup>o</sup> (dry finish) and 675 <sup>o</sup> (smooth finish)	5
3	9999 <sup>o</sup>	1040 <sup>o</sup>	5 (depends on size and thickness of the pieces)	9999 <sup>o</sup>	560 <sup>o</sup>	5 (depends on size and thickness of the pieces)
4	50 <sup>o</sup>	986 <sup>o</sup>	0	10 <sup>o</sup>	530 <sup>o</sup>	0
5	9999 <sup>o</sup>	0	0	9999 <sup>o</sup>	0 <sup>o</sup>	0

Note: 9999<sup>o</sup> means as fast as the kiln allows

When painting with enamels or silver-stain, consult with their supplier or manufacturer.

When we fire enamels, we typically fire them to 1040<sup>o</sup> - 1112<sup>o</sup> Fahrenheit / 560<sup>o</sup> - 600<sup>o</sup> Celsius depending on their manufacturer.

When we fire silver-stain, we typically fire it to 1040<sup>o</sup> Fahrenheit / 560<sup>o</sup> Celsius.

Testing is essential.

## Any Other Questions?

If you have other questions, please e-mail us at [studio@BeautifulGlassPainting.com](mailto:studio@BeautifulGlassPainting.com) and we will answer you as best we can.

Thank you for reading this guide.

We're keen to pass on what we know. We've some amazing techniques, and we are glad to share them with you, wherever you are in this world.

Here are some of the comments that you readers have sent us – we can only say “thank you” and then continue with our work of describing and photographing the way we paint our glass. These techniques belong to everyone who is interested!

“Thank you most sincerely for your book, which I found the **single most helpful guide** on the subject since I became interested in glass painting as a pastime a few years ago” (Simon O’C, Nottingham, UK).

“I have worked through your manuals and they are **excellent - very clear**” (Karen D., Aberdeenshire, Scotland)

“Just finished printing this out and it looks like **a truly wonderful book**” (Elena W., USA)

“[the chapters] look superb - exactly the kind of **detailed help I’ve been needing**” (Jane H., Sheffield, UK)

“Your guides seem very **good and professional**” (Anniki R., Hämeenlinna, Finland)

“Thank you for your **prompt action** and kind comments and **advice**” (Mikiya A., Japan)

“**Brilliant and informative**” (Hil G., Barwick, UK)

“I can’t thank you enough” (Maurice M., New Jersey, USA)

“**Great reading!**” (Amanda B., London, UK)

“I can’t wait for more to become available” (Peter W., Queensland, Australia)

“**You fellows are great.** I’ll love to meet you sometime!” (Marianne P., Georgia, USA)

“Absolutely clear! **Wonderful!**” (Rosie D., London, UK)

“**Excellent work:** I always enjoy reading about your wonderful technique and seeing

how it’s actually done” (Jerry Q., Virginia, USA)

“The book looks brilliant” (Lynsey H., Auckland, New Zealand)

“You guys are **a great resource**” (Tim S., Michigan, USA)

“I am so **impressed by your service**” (Richard C., Milton Keynes, UK)

“Very **helpful and informative**” (Charlotte P., Florida, USA)

“Now I can really imagine the beautiful things **I can paint with your help**” (Adela S., Guatemala)

“I **love** the information you offer online and I look forward to the upcoming chapters” (Deborah W., New Mexico, USA)

“Many thanks for your prompt service sending the glass painting chapters: they are **outstanding!**” (Terry S., Nova Scotia, Canada)

“Thanks for another lovely chapter: I can’t wait to have a go. What **lovely people you are**” (Julia H., Bexhill on Sea, UK)

“**Thank you for inspiring me**” (Stephanie L., Oregon, USA)

“When does the next installment come out? - **I can’t wait!** Thank you again” (Jacqi F., Washington, USA)

“It’s a great experience to learn these new techniques” (Fábio M., Sao Paolo, Brazil)

“You are both gentlemen and damned fine teachers” (Patrick G., Scotland, UK)

“Your information is useful, **your interest is priceless**” (William S., Kentucky, USA)

“Thank you for capturing your studio’s experience on paper: **the chapters are great**” (David T., Virginia, USA)

“Thanks so much for **all the tips and information**” (Eve H., Nevada City, USA)

“... people like you who are **prepared to give these secrets to others**” (Ivo de C., Antwerp, Belgium)

“**Until I found your site** it was such a struggle!” (Stuart M., Lancashire, UK)

“Your lessons are wonderful and they have

been very helpful to me. **I look forward to every lesson you put out**” (Sandra M., Ontario, Canada)

“Most **impressive service** and great follow up” (Paul H., Kenley, UK)

“The glass painting e-book is great: very **detailed and easy to follow**” (Richard B., Boston, USA)

“I can’t begin to thank you enough for **your beautiful e-book.** I am so excited to read it. Your work is absolutely gorgeous!” (Kevin T., Florida, USA)

“Thank you for the guides: they have **filled in many gaps** in my painting education” (Amanda S., Scotland, UK)

“Many thanks, **great service**” (Martin M., Sheffield, UK)

“Tried what you said and **it worked like a dream**” (Judy A., Texas, USA)

“Thanks for your quick reaction. The articles are **a great help for us**” (Ab E, Veldhoven, Netherlands)

“I would like to tell you that I enjoy very much your chapters on glass painting. They help me to produce projects with **a better understanding of the art.** It is also very helpful since I am in Canada and cannot take the sessions at your studio (for the moment...)” Joanne L, Manitoba, Canada

“I’m so impressed with your service and speed of delivery and organized web page that I am in awe! **Your information is great** too and I look forward to putting it into practice.” (Mandy W., Dargaville, New Zealand)

“Just a short note now to tell you that **I am delighted with your book:** what a lot of work you have put into it; Bravo!” (Kenneth L., New Jersey, USA)

“I must say the information in your glass painting book is **extremely helpful** as I learn the various processes of stained glass painting- not to mention your prompt email replies. I am really impressed with the knowledge you are willing to share with public and me. I brag about the help I receive from you all the time to my family and friends. You’re very professional in the way you handle your clients. **You’re the best!**” (Charlotte P., Florida, USA)

“You two are the Masters. You know, Stephen, of all the books I have looked at in

the library **your chapters are the most helpful**. You can see that you really want to help and share your tips and ideas with everyone.” (Eve H., California, USA)

“The guides and instructions are so well thought out and they’ll be a great help” (Wenna C., Devon, UK)

“Thankyou for the information on painting on glass. It has been a  **blessing**” (Jeanne S., New Jersey, USA)

“As a ‘younger generation’ teacher, I find resources like yours very useful - it’s nice to know there are some people who are **willing to share their knowledge and skill** about stained glass and glass painting” (L.T., London, UK)

“The chapters are very detailed and are very helpful. The paintings are amazing and have been very **inspirational** to me. Thanks for such a great book with **such a lot of information**” (Varsha U., Bangalore, India)

“Thank you for the course and all the written materials. We have really enjoyed our painting so far, and all your **tips and careful instructions** have meant that we have had pretty consistent success - and we are learning with every project we attempt.” (Chris T., Salisbury, England)

“Love your book! ... What a fantastic effort on your part! Love your work. Love your **generous knowledge sharing** for an affordable price. Love your web page” (Mandy W. NZ)

“J’ai téléchargé votre chapitre 7 hier et vous m’avez sérieusement déstabilisé. C’est une vrai “entmystiphizierung”; bravo!!! Les explication sont clair et précises. Mais le plus grand choc pour moi était la fin du chapitre. On m’a toujours empêché de mettre l’émail ou le jaune d’argent sur une face déjà occupé. D’après mes teachers c’est ne pas possible. Le doute m’a empêché de dormir hier soir et à une heure du matin j’ai essayé l’émail sur une pièce déjà occupé par de la grisaille. Et ça marche!!! Alors, c’est génial. Je vais m’envoler vers des nouveaux horizons. Merci!!! **Vous êtes les meilleurs**” (Sigrun W., Sancerre, France)

We wish you all the best.



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