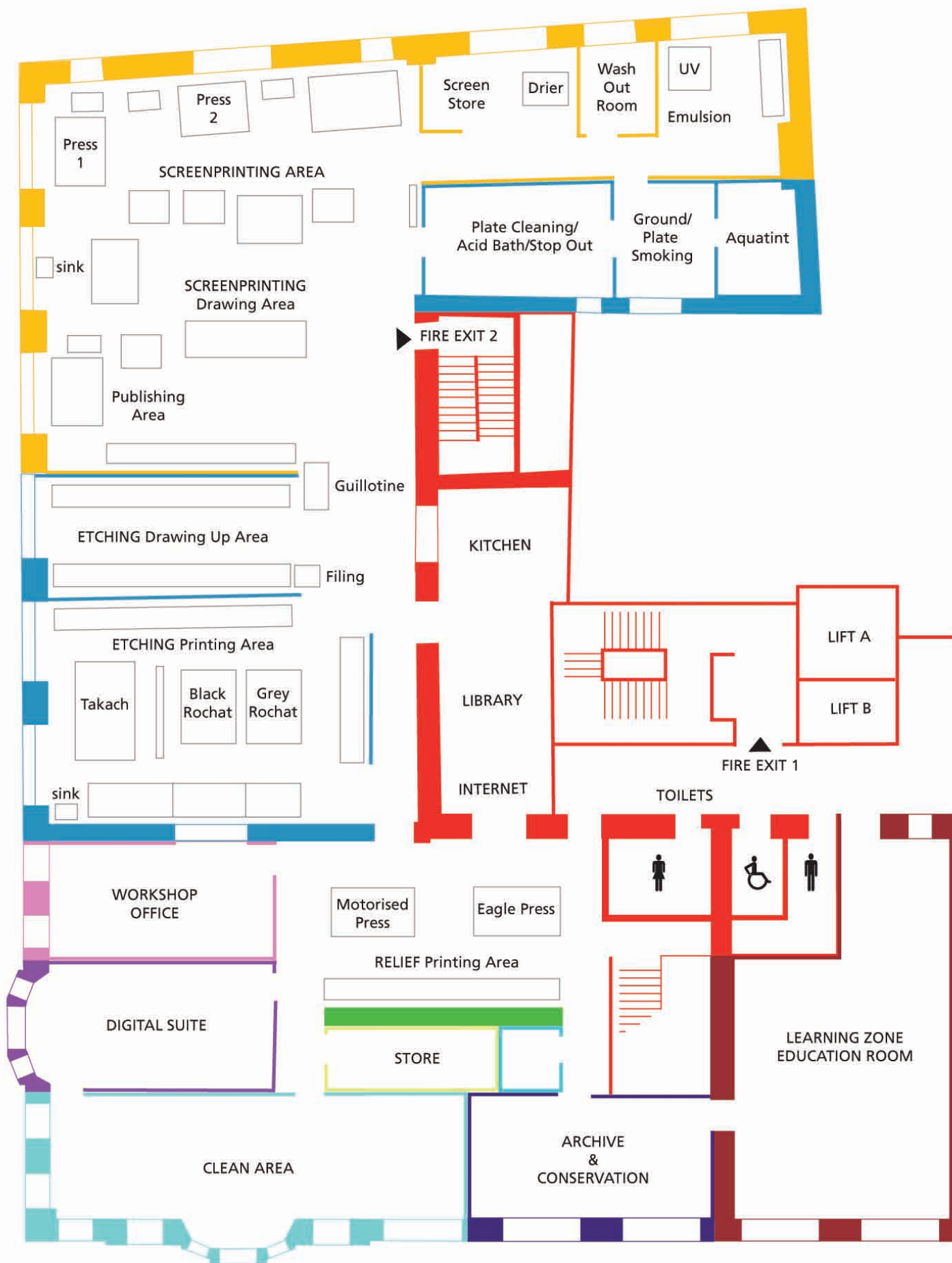


Glasgow Print Studio - Etching Handbook

Introduction to Etching/Beginner Refresher Course Guidelines

Glasgow Print Studio Workshop Floor Plan



HEALTH & SAFETY

TO ALL TUTORS AND STUDENTS. PLEASE READ CAREFULLY.

The first aim is to teach the fundamental process of the medium, ensuring that by the end of the course the student is competent to use the facilities safely and without supervision.

The second aim is to make sure that the student is aware of matters relating to health and safety in the workshop. Each student must be told of the hazardous nature of specific chemicals in use and if they may be more at risk (see list below.) Each student must comply with procedures put in place for their own protection use of gloves, face masks etc.

The third aim is to make sure that the student fully understands the importance of clearing up all their own mess and put away all items used including tools and inks.

The final aim is for all to benefit from and enjoy the class.

TREAT ALL SUBSTANCES AS POTENTIALLY HARMFUL!

Main hazardous substances in etching through inhalation and absorption.

- **White spirits;** carcinogenic.
- **Methylated spirits;** carcinogenic.
- **Solvent based varnishes;** carcinogenic.
- **Nitric acid;** corrosive. Use protective equipment.
- **Resin dust;** can cause lung damage and respiratory problems.
- **Printing inks;** contain poisonous metals and carcinogenic substances.

* **High risk groups include pregnant women, nursing mothers (we recommend that neither of whom should be in the workshop) women of child bearing age and persons with allergies and sensitizations. For advice contact Claire Forsyth at the Glasgow Print Studio or see the folder of Health and Safety Material Data Sheets in the kitchen for more information.**

* **Failure to complete the course or to meet the required level of efficiency may mean that the GPS will be unable to consider requests for membership or to allow current members use of this facility.**

There are two fire exits from the workshop and are clearly marked. If the fire alarm sounds, please evacuate immediately, taking care not to use the main stairs down to the gallery, and proceed to the assembly point which is outside Avant Garde Bar on Parnie Street. Toilets are situated outside main workshop door on the right. No smoking restrictions are in place at the GPS.

EQUIPMENT



PRINTING PRESSES

Rochat (x 2) etching press 26" wide.

Black Rochat (Jump on/Jump off)

Grey Rochat (Bookable)

Takach motorised etching press 42" wide. Used by members for printing large-scale works or people with back trouble. To use the Takach press all members must have an induction with a member of staff.

ETCHING TECHNIQUES



1. USING THE GUILLOTINE

To cut a plate to size, an accurate line must be scribed or drawn across the plate. Lift the footplate of the guillotine to its maximum and slide the etching plate in. Looking down the gap on top of the guillotine, line up the scribed mark with the lower edge of the guillotine blade and clamp the plate in place on both sides. Depress the footplate to cut.



2. PREPARING A PLATE FOR ETCHING

BEVEL all the upper edges to approximately a 45 degrees angle and round off all corners. Make sure that there are no sharp burrs even on the underside of the plate. Beware of metal filings as they can scratch the plate. Use a piece of card to protect the surface from the clamp. Ensure that filings do not stray into other areas and that contaminated rags are disposed of.

ETCHING TECHNIQUES



CLEAN the plate thoroughly with Brasso, then with white spirits. At the sink area, spray plate with Mr Muscle Kitchen. Using pad with a sprinkling of degreasing powder, work the paste in a circular motion across the whole surface of the plate. If it is not properly clean, water will be repelled from the surface and the ground may later flake off and cause "foul biting." Dry off excess water with clean cloth or paper towel or leave plate propped in front of heater to dry.



3. SOFT AND HARD GROUND DRAWING

A waxy acid-resist, known as a ground, is applied to a metal plate. There are two common types of ground: soft ground and hard ground. There are two separate rollers used to apply the ground, the wide dark roller is for hard ground and the narrow green roller is for soft ground.

SOFT GROUND

Soft ground is an acid resistant wax layer which when rolled thinly over the surface of the plate stays soft (as opposed to hard ground which sets brittle). Anything within reason can be pressed into the ground. This exposes certain areas of the metal to the acid, which etches the pattern into the plate.

NOTE: PLEASE SEE A MEMBER OF STAFF IF YOU WISH TO USE A PRESS TO PUSH OBJECTS INTO THE GROUND. DO NOT PUT SOFT GROUND THROUGH THE PRESS WITHOUT STAFF SUPERVISION.

Tracing paper laid carefully over a soft ground will, when drawn on top of, lift the ground leaving a soft pencil like line, i.e. the texture of the tracing paper. Attach the tracing paper to plate by folding masking tape over the edge and stick to the back of the plate. Be careful not to press on top of the tracing paper as all marks will be transferred onto the surface of the plate.

APPLYING SOFT GROUND

When using the soft ground, place your degreased plate on the hot plate set at 50 degrees. Wait until the plate is warm and apply the soft ground by melting a small amount on to it. Using the soft ground roller provided, roll the ground evenly across the plate until it yields a rich golden tone. Place the soft ground roller back on the shelf resting on its legs and not on the soft rubber roller part as this will damage the roller. Clean the hot plate with a little white spirits on a rag. Do not pour white spirits directly on to the hotplate.

ETCHING TECHNIQUES



SMOKING THE PLATE

Before the plate has cooled, place your plate face (or ground side) down in the smoking unit. To smoke the surface of the plate, move a lit taper back and forth methodically. Keep the flame at a slight distance from the plate until the plate surface becomes noticeably darker. Gently stamp out the lit taper on the ground with your foot. Remove the plate from the unit when it is cool.

HARD GROUND

Hard ground drawing results in a sharper (pen and ink type) line. The design is drawn directly through the ground using a broad needle without the use of tracing paper. This exposes the metal without scratching it.

APPLYING HARD GROUND

Hard ground is prepared in the same manner as soft ground. When applying hard ground the hot plate should be set at 85-90 degrees. Using the hard ground roller provided, roll the ground evenly across the plate until it yields a rich golden tone. Place the hard ground roller back on the shelf resting on its legs and not on the soft rubber roller part as this will damage the roller. Clean the hot plate with a little white spirits on a rag. **Do not pour white spirits directly on to the hotplate.**

SMOKING THE PLATE

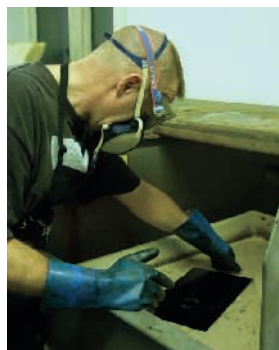
As described above



4. APPLYING STOP-OUT VARNISH & STRAW-HAT VARNISH

Stop-out has a brownish colour and thicker consistency than Straw-hat which has a blue-black colour and a thinner consistency. Please make sure you replace the correct brushes in each container and each container to the appropriate area. Apply a thin layer of Stop-out to the front of the plate on any mistakes in a drawing that you do not want etched. Then apply Straw-hat varnish to the back of the plate being careful not to let it run down the front of your plate. Turn on the drying fan to a cool setting. It usually takes about 10 minutes to dry.

ETCHING TECHNIQUES



5. ACID BATH

Wearing protective goggles and gloves provided, carefully place the plate into the acid bath with the drawing side facing up. To make it easier for you to remove the plate, place the plate along the groove in the acid bath. The longer the plate remains in the acid the deeper the “bite” becomes. The length of time in the acid determines the depth of the etch and therefore the tone of the line i.e. the amount of ink held.

During the etching process you may need to use a feather to wave away bubbles and residue produced by the dissolving process. If a bubble is allowed to remain on the plate then it will stop the acid biting into the plate. Alternatively the plate can be rocked or occasionally lifted out, drained and replaced.

When removing the plate from the acid bath, be careful not to touch the surface of the plate as the acid is still etching. Carefully lift and tilt any excess acid off the plate back into the acid bath. Rinse the plate in the washout sink using the hose. Remember to wash your gloves afterwards with water.

IMPORTANT* ACID - TAKE CARE. STUDENTS SHOULD NEVER TOUCH PURE ACID!

Should an accidental spill of pure acid occur, flood the area/skin/clothing with cold running water instantly and thoroughly. Seek medical advice immediately from a member of staff. Spills or splashes of dilute acid from the bath should be washed with cold running water. Remember acid can be dangerous and must always be handled with care. Use goggles, rubber gloves and a fume mask at all times.

ALL INCIDENTS SHOULD BE REPORTED TO A MEMBER OF STAFF.



6. AQUATINT

*** HEALTH & SAFETY: APRON, GOGGLES, MASK AND GLOVES SHOULD BE WORN AT ALL TIMES.**

Aquatint is concerned with areas of tone rather than line. The plate is covered with a thin layer of resin powder which when melted, adheres to the plate as tiny acid resistant dots. The acid can etch between the dots to create a network of very fine lines, which can appear as a solid tone. As with line etching the length of time in the acid determines the depth of the etch and therefore the darkness of the tone. Tonal variations are achieved by stopping out any given areas at any depth of etch. Areas to remain white are stopped out before any etching is done.

ETCHING TECHNIQUES

6. AQUATINT *continued*

METHOD. First, stop-out all areas to remain white and allow to dry. Turn the handle of the aquatint box a dozen times **after checking there are no other plates inside.** Wait for 10-20 seconds for the heaviest particles to settle, put the plate on a board and into the box. Leave it for 4 minutes or until the dust has settled. Then remove the plate carefully and repeat the process so you have two layers of dust. Keep the door of the box closed at all times. Carefully remove the plate and carry it carefully to the burning area, taking care to close the sliding door behind you (Aquatint dust has an explosion risk.) Place the plate on the metal grill and heat evenly from underneath with a gas poker to melt the resin. Apply Straw-hat to the back of the plate and along the edges. When dry, place plate into the acid bath and leave for appropriate duration. Although this is a method for the beginners class there are other approaches and ways of manipulating the process to attain various results.

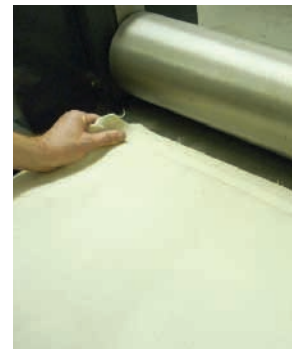


7. CLEANING THE PLATE

White Spirits

Methylated Spirits

Place plate onto the cleaning bench ventilated unit. Use white spirits on a cloth to remove Stop-out varnish. Use methylated spirits on a separate rag to remove the straw-hat and aquatint resin. The cleaned plate is now ready to be inked for printing or for another technique.



8. SETTING THE PRESSURE ON THE ETCHING PRESS (ROCHAT)

NOTE:

The manual etchings presses are designed to print etching plates of standard thickness only and CANNOT print thicker monoprint perspex or wood/lino blocks.

With the blankets removed, and the bed in the centre, screw down both pressure bolts (clockwise) with the appropriate spanner until they stop (do not over tighten).

Starting with the bolt on the opposite side of the flywheel, "nip" the top roller to the bed by applying a little extra tug equally to both bolts.

Now carefully undo (anti-clockwise) both bolts accurately by two turns. NEVER undo the bolts by more than this.

Slowly, run the bed out to its maximum extent.

ETCHING TECHNIQUES

8. SETTING THE PRESSURE ON THE ETCHING PRESS (ROCHAT) continued

Feed the blankets in (two "frontings" with one thicker "swanskin" on the top) by feathering the leading edges under the roller, then turn the flywheel. This pressure should be adequate for standard 1.2mm etching plates but can be increased (clockwise) or decreased (anti-clockwise) by turning the pressure bolts equally by a small amount. NEVER by more than an extra 1/2 turn maximum.

If you are unsure or need assistance please ask a member of staff. We are happy to help.

WARNING

NEVER unscrew bolts more than stated above. The solid steel bed can fall to the floor!!!

NEVER pull the blankets if they have become trapped. DO NOT undo the pressure bolts as the solid steel bed can fall out!!! Call a member of staff immediately.

NEVER SPIN the fly wheel faster than you can comfortably hold with two hands. Doing so is highly dangerous as the momentum in a spinning fly wheel can shatter bones with contact and can also permanently fracture the cast iron of the press.

NEVER put objects through the press for soft ground without staff supervision.



9. PRINTING THE PLATE

Place the printing paper into the water bath to soak, for the appropriate time. The etching plate can be warmed slightly on the hotplate prior to applying ink. This helps to soften the ink and makes application easier. Ink is spread over the entire surface of the plate and forced into the etching with either a dabber or a squeegee. Fold scrim material into halves and then make a ball shape in the palm of your hand. Work the scrim around the plate in a circular motion, applying slight pressure to push the ink into the etched grooves whilst removing excess ink from the plate. To highlight areas rub lightly with a flat sheet of tissue paper. Remember to clean the edges of your plate.

If copper or zinc plates are being printed the background will appear white in the print. If a steel plate is used then the plate's natural tooth gives the print a toned background.

When removing the printing paper from the water bath, hold up the paper and allow excess water to drip off. Place wet paper onto Perspex wall and allow water to run off. Then use the squeegee hanging to the side of the perspex wall to squeegee off any excess water. Place the damp paper between sheets of blotting paper. Place an acetate sheet on top. Rub your hand or rag across the acetate applying slight pressure. The paper is now ready to use for printing.

ETCHING TECHNIQUES

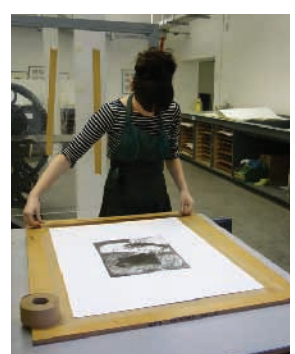


10. USING THE PRINTING PRESS & REGISTERING THE PLATE

Make sure your hands are clean. Place a registration sheet (acetate) on to the printing press. A registration sheet is a guide with the outline of the paper and plate drawn with a marker on the underside. Align the plate, ink side facing up on top of the registration sheet. Place printing paper on top. Place a piece of tissue paper on top of the printing paper. Using clean hands or "paper" fingers, lift and gently unroll the printing blankets and place flat across the print. Printing blankets are expensive so be careful when handling them. Standing with the press on your right hand side, with both hands turn the handle on the flywheel by pushing forward over the top. Run through at an even speed. Do not let the handle go as it may spin around and cause injury. The handle of the press should always be left in the highest position. Carefully lift back the printing blankets with clean hands. First remove and discard the tissue paper. Then carefully lift the printed paper by the edges and place onto a drying board. Remove the plate. Clean any ink residue on the registration sheet and bed with a small amount of white spirits on a rag.

Ghost print. If you take another print from the same plate before you clean off the ink you will end up with what is called a ghost image.

If you are printing the same colour you do not need to clean your plate. Just re-ink with the same colour. However if you want to apply a different colour you need to clean the plate thoroughly. Unfortunately, the pressure of the printing press subtly degrades the image in the plate, smoothing the roughened areas and closing the lines. A steel plate is good for a few hundred printings, copper and zinc plates are good for approximately forty prints. At that point, the artist can manually restore the plate by re-etching it, essentially putting ground back on and retracing their lines; alternatively, plates can be (steel faced) electroplated before printing with a harder metal to preserve the surface.



11. STRETCHING THE PRINT

A print should be stretched while the paper is still damp. Lay the print on a solid board face up. Cut four pieces of paper gum strip slightly longer than the length and width of the paper. Dampen the gum side of the gum strip by spraying lightly with a fine mist of water. Alternatively lightly dampen the gum side of the gum strip by drawing a wet sponge down its length. When the gum strip is tacky carefully lay it along one edge of the paper overlapping it by about one centimetre. Smooth the gum strip out gently and do not press too hard. Repeat for all four sides. Write your name and date on the gum strip and replace the board back to the drying rack under the paper bench. Remove the print when dry, usually a day later. It is very important that you then remove all traces of gum strip from the drying board. To do this, use the water sprayer, to dampen any tape left on the board then scrap off using a palette knife.

ETCHING TECHNIQUES

12. CLEANING UP

To clean ink from printing plate, squeegee and printing press use either white spirits or vegetable oil on a cloth. Place used cloths rags and scrim into the black 'fire-proof' boxes in the workshop ensuring lid is closed after use.

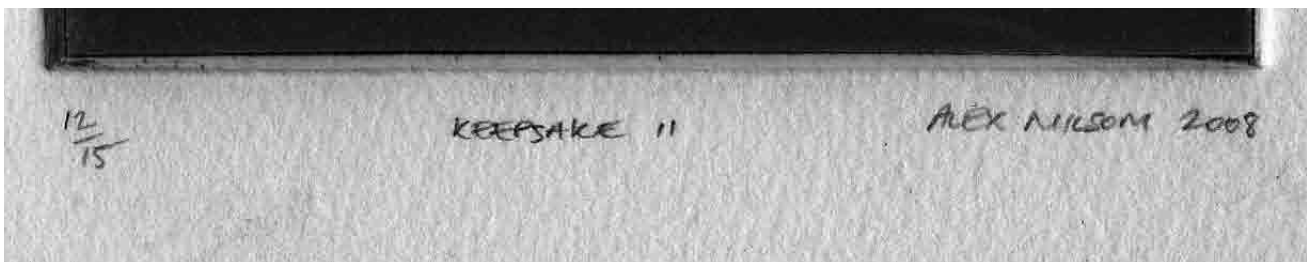
13. EDITIONING & SIGNING PRINTS.

It is important to make sure that you are signing your prints correctly. Although this can be endlessly confusing, a few simple guidelines can suffice if adhered to.

Always sign prints in pencil on the lower margin. The edition mark (2/30; 4/10 etc) is usually to the left with the title in the centre and the signature to the right. Another edition mark you can use is A/P. This stands for artist's proof. They are extra to the total in the edition and should not exceed 10% of the size of the edition or five in number whichever is the greater.

Don't be tempted to sign one off or hand coloured prints as monoprint or monotype. These are recognised techniques and do not solely mean that there is only one of them. Hand coloured etchings, woodcuts etc., should be signed with the usual edition numbers and can be followed by the letters V/E (see below).

There are a host of other marks which can be useful but are best avoided unless you are sure of their meaning and why you are using them. Remember, you are bound by the law not to extend an edition size or re edition an image once completed without changing it. To do so is fraudulent.



Other edition markings you could use are:

A/P - Artist's Proof - for the artist's personal use. Normally up to 10% of the edition size or up to five in number.

P/P - Printer's Proof - for the printer.

B.A.T. - Bon à Tirer - means "Good to Pull" in French, and is the guideline image against which the rest of the edition are matched for quality and colour.

H/C - Hors Commerce - means "Outside of Commerce" in French, meaning it is not for sale but is used for display or photography.

S/P - State Proof - a working proof which is pulled during the process to show the development of the image.

V/E - Varied Edition - used on hand-coloured and variously inked prints, where colour will vary between prints. The letters V/E are added alongside the edition number.

Archive - Archive Print - this is used at GPS to show the print is for the Archive collection.

Chop Mark – This is an embossed mark made on the paper to show the workshop the edition was printed in. At Glasgow Print Studio we use an image of an eagle, which is usually found at the bottom right corner of a print. Some artists also have their own chop mark.

ETCHING TECHNIQUES

14. NOTES ON OTHER TECHNIQUES

SPIT BITING

Using a brush or feather various strengths of acid are painted directly onto an aquatinted plate. Such small amounts of acid have a very limited life span (5 minutes or so) tones can be built up with 3 or 4 fresh applications.

SUGAR LIFT OR SUGAR AQUATINT

A prepared solution of sugar containing a little black ink and gum or washing up liquid is used to paint a design onto a clean plate. When tacky, a thin layer of straw-hat varnish is painted over the image. Once this has dried, it is placed in a bath of warm water. The sugar solution will dissolve, lifting the varnish away with it and exposing the metal to be etched.

POSITIVE CRAYON DRAWING

Chinagraph pencils can be used to draw onto an etching plate as it is an acid resist (negative drawing). However, if methylated spirits based straw-hat varnish is used to cover the drawing, the crayon can be removed using white spirits and etched like sugar lift.

DRY POINTING

A sharp metal or diamond tool can be used to physically score into the surface of the plate. This causes a burr to be thrown up next to the scored groove (like a plough share action) resulting in a soft and totally unique type of printed line. The burr which also catches the ink for printing can soon wear down, so this line has a limited life span.

MEZZOTINT

The plate (copper) is prepared by roughening the surface with a mezzotint rocker. The serrated edge will cut a series of closely grouped lines which when printed will be entirely black. By using a scraper/burnisher various tones through to white can be achieved by scraping and polishing the surface smooth again. As with drypoint, mezzotints have a relatively short life span.

PHOTO ETCHING

Light sensitive photo etching plates allow for photographic positive films (photographs or drawings) to be transferred to the plate. Ultraviolet light is projected onto the plate to expose it. Photo etching plates are either developed in warm water or with other chemicals according to the plate manufacturers' instructions. Areas of the photo-etching image may be stopped-out before etching to exclude them from the final image on the plate. Once the photo-etching process is complete, the plate can be worked further as a normal intaglio plate, using drypoint, further etching, engraving, etc. The final result is an intaglio plate, which is printed in the normal way. If you have not done photo etching before please see the Workshop Manager to book a one to one session.

15. STORAGE

Metal Plate Storage and Guillotine

The metal plate storage contains copper and steel. Do not remove black coating from copper until the piece is cut. The guillotine can be used by all members, however if you would prefer a member of staff will cut the plate for you.

ETCHING TECHNIQUES

16. CARE AND CONDITION - HOW DO I LOOK AFTER PRINTS?

Handle with Care! Paper easily picks up dirt and oil from your hands and can be creased or torn if held incorrectly. Always have clean hands or wear cotton gloves and try to keep handling to a minimum.

Store correctly. If not framed, prints should be stored flat, between layers of acid-free tissue paper or in an acid-free folder or archival polyester pocket. Do not allow acidic materials to come into contact with your print as they can discolour the paper. Your storage area should be clean, dry and at a constant, cool temperature.

Frame considerably. Make sure the framer uses acid-free materials - you should check this before getting anything framed. Your print should be under a mount or 'floated' by hinging it to the backing board - it should never touch the glass as this may lead to it being damaged by condensation.

Keep away from light and heat. Daylight and strong artificial light can cause colours to fade. Do not hang a print on a wall which is in direct sunlight, and consider rotating your prints to protect from over-exposure to light. Do not hang over a heat source like a radiator or fireplace.

USING THE WORKSHOP INFORMATION THAT YOU SHOULD KNOW

If you have completed the class to the satisfaction of your tutor, you will be able to join the GPS and work in your chosen area under your own steam. Conditions of membership state you should be able to work safely and efficiently on your own. However, there are always staff on duty for quick queries.

Your contact in the workshop is Claire Forsyth. The names and photographs of staff on duty are displayed in the workshop.

All new members are required to attend a workshop induction, this usually last 1-2 hours and will familiarise you with working independently in the workshop. Membership payment will also be required at this time.

Please contact Workshop Manager, **Claire Forsyth** to book an induction.
workshop@glasgowprintstudio.co.uk or tel **0141 559 6911**.

WORKSHOP COMMON SENSE

You are bound by the conditions of membership to work in the workshop in a safe and considerate manner. Think about other users and how your actions may affect them. Members who break the conditions of membership or who do not work in a professional manner may have either membership revoked and or be asked to attend a class.

Please maintain good professional practice by ensuring that you leave all the areas that you have worked in both clean and tidy. This includes cleaning up any inked surfaces using the white spirits that we provide, cleaning spilled varnish, placing used rags in the rag bin, removing used acetate from all areas, etc. White spirits and blue roll is provided for you to use for these tasks. Please ask the workshop assistant or manager if you are unable to locate these items and we will happily re-stock the area with more.

USE PROFESSIONAL PRACTICE AT ALL TIMES, IF YOU HAVE GOT ANY DOUBTS ABOUT PROCESSES OR STUDIO PRACTICE YOU MUST ASK A MEMBER OF STAFF

USEFUL SUPPLIERS/CONTACTS

Intaglio Printmakers t:020 7928 2633 www.intaglioprintmakers.com

Lawrence t: 01273 260260 www.lawrence.co.uk

Thanks to the learning and workshop staff at Glasgow Print Studio

Designed by Hazel Moore

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