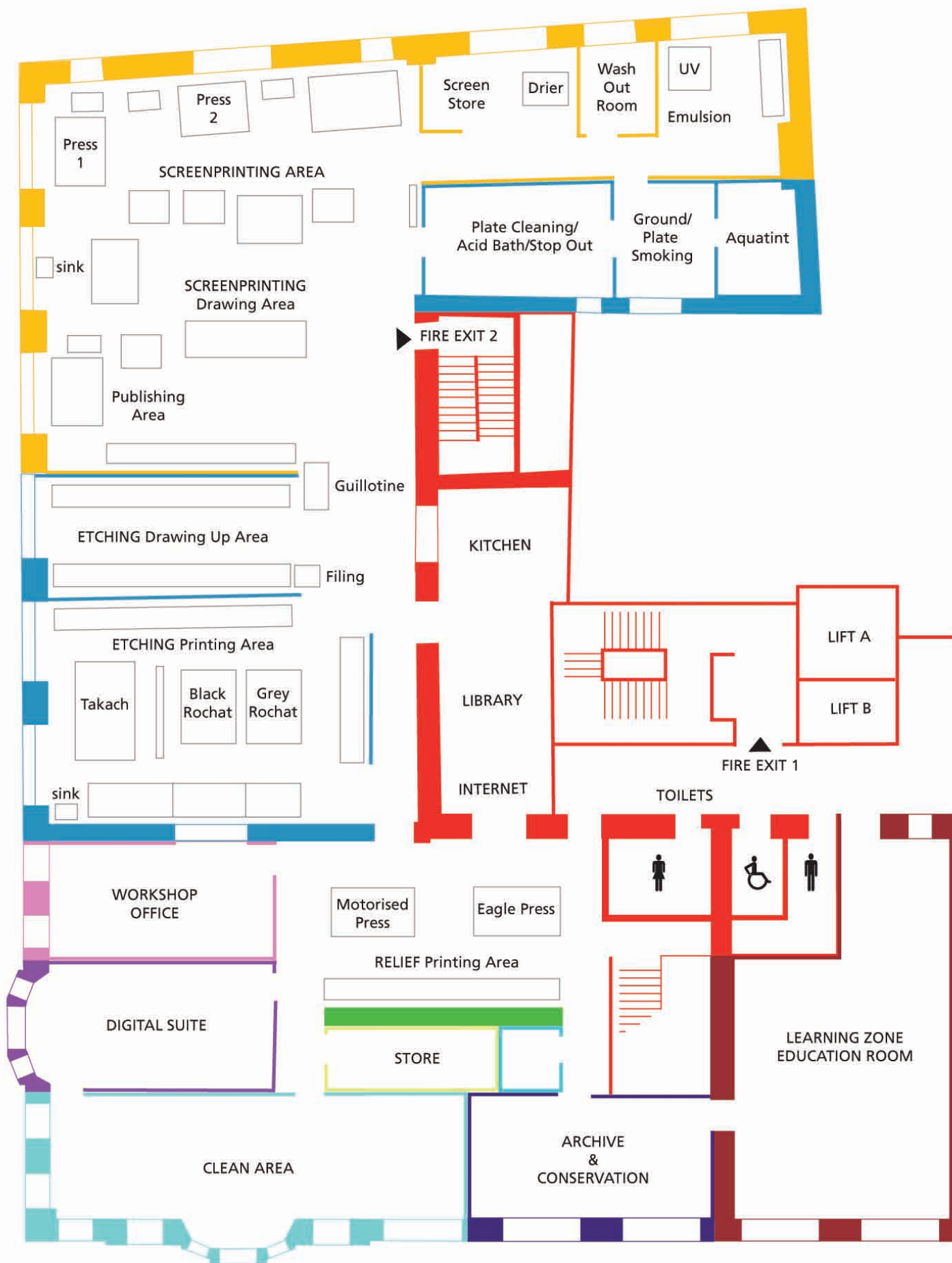


Glasgow Print Studio - Screenprinting Handbook

Introduction to Screenprinting/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 screenprinting through inhalation and absorption.

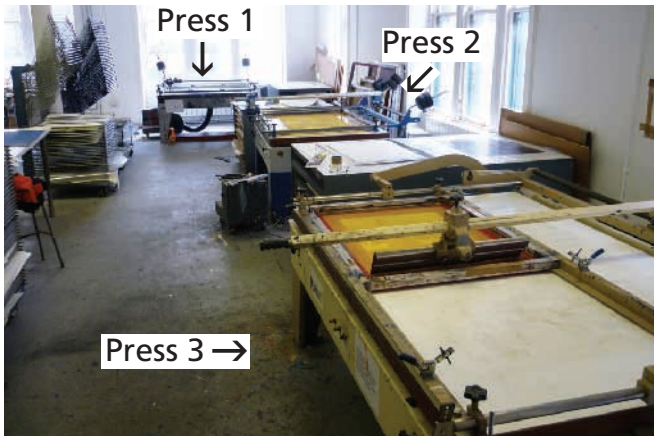
- **Printing inks;** irritant.
- **Light sensitive photo emulsion;** skin sensitiser.
- **Haze remover;** corrosive.
- **CPS screen wash;** corrosive
- **Decoating agent (emulsion remover);** respiratory irritant.
- **Screen mesh degreaser**

* 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



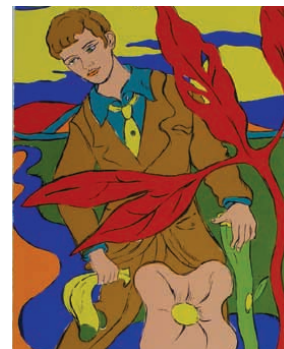
PRINTING BEDS

Press 1 Kippax vacuum table 44" x 56"
(Bookable)

Press 2 Kippax vacuum table 44" x 56"
(Bookable)

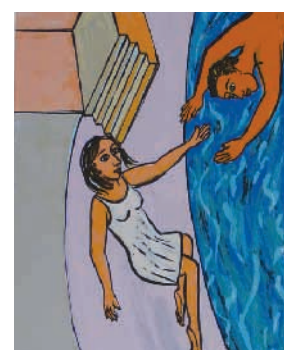
Press 3 Semi automatic press
(Training and permission required prior to use)

SCREENPRINTING TECHNIQUES



1. PREPARING A SEPARATION

Virtually any material, which can block ultraviolet light (UV), can make an effective separation. The separation, whether cut paper, flat objects (check with workshop staff before using), or some form of drawn or painted medium is applied to a clear film, called drafting film. Alternatively True Grain film is used which gives a more textured mark. Indian ink, chinagraph, oil pastel, graphite and black acrylic are just some of the media that can be applied directly to the textured side of True Grain.



Photographic opaque paint "Photopaque" a brown specialised paint that can be used watered down or solid and is used in screenprinting. Photopaque can be diluted with water, and oil paints with solvent to give translucent washes, which reticulate on true grain. The degree to which these effects can be reproduced in the printing will be learned by experience & by experimenting with different exposure times. Any opaque 2D-collage material can be used by applying it to the film with clear tape. The separation must be completely dry before exposing it to the screen and must contain nothing that could pierce the black rubber hood of the exposure unit or scratch the glass on the printing down table. Separations can be laser printed or photocopied onto film transparencies. Images can be prepared using Photoshop and printed onto film from the Glasgow Print Studio digital suite. This service must be booked in well in advance, please email mrobertson@glasgowprintstudio.co.uk for details.

SCREENPRINTING TECHNIQUES



2. SCREEN PREPARATION

Select a suitable sized trough. The trough should be no bigger than the screens mesh size. Place your screen on the floor resting firmly against the wooden block. Photo sensitive screen emulsion is used to coat the screen. To apply the emulsion to the screen, pour a small amount into the trough. You should wear gloves as the emulsion is a skin irritant, tilt the trough from side to side gently, to spread the emulsion the full length of the trough. Hold the trough against the mesh of the screen, tilt at a 45 degree angle, allow a few seconds for the emulsion to touch along the length of the screen and immediately pull the trough upward against the screen in one continuous movement. Tilt the trough towards you lifting it up and away from the screen in order to catch any excess emulsion. Do not draw the trough over the frame at the edge of the screen as this will result in a very thick coating. The emulsion should be applied in one thin coating to the outside of the screen.

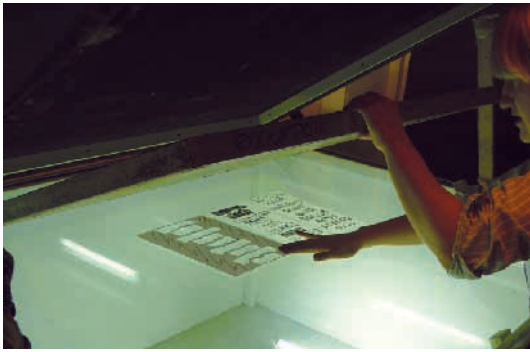
The photo screen emulsion is expensive and light sensitive. Care must be taken to replace the lid of the tub immediately after use to avoid light damaging the emulsion. Any excess after use must be scraped back into the tub and the lid firmly replaced. Wearing gloves wash the trough thoroughly with a sponge and water in the wash out area. After the screen is coated, it should be placed in the screen drying unit (oven). The oven is situated in the screen storage area. Place your screen inside, firmly close and secure the latches before turning the temperature control dial back to 30. When door is closed leave for 10 to 15 minutes approximately depending on how hot the oven is. Remove the screen when completely dry, be careful as the metal frame of the screen can be hot. The screen emulsion can be purchased from the workshop office at the official dispensing times. Alternatively you can pay per swipe if you are using a hire screen. Hire screens are limited and can be arranged through workshop manager or assistant.



3. EXPOSING THE SCREEN

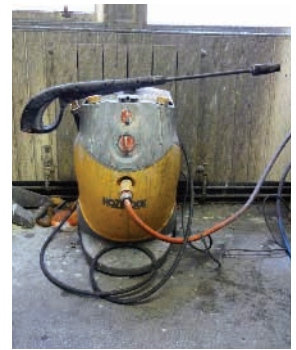
To expose an image onto your screen make sure that the glass of the exposure unit (print down table) is clear of any dust or smears. Place your separations (coated side up) in the middle of the exposure unit, directly above the bulbs. If using text make sure its readable and not in reverse. Place the screen mesh side down very carefully on top of the separation, allow a 15cm gap from the edge of artwork to the screen edge. It is very important that you do not scratch the glass in any way as the scratches will expose onto people's screens. Please ask for help to lift your screen onto the glass if you need it.

SCREENPRINTING TECHNIQUES



3. EXPOSING THE SCREEN continued

By putting the strip light (1) on this will make looking at your image on the table easier and help to align your images to the desired position. Turn the strip light (1) off when you are ready to expose. Close the lid of the unit and use the latches to ensure that it is thoroughly closed. Turn on the vacuum (2). If the vacuum does not seem to seal, press firmly on the lid. Set the exposure unit level (3) – for instance, 003 is a good light unit measure for an image that has finer lines and bolder areas. Turn on the exposure light by pressing button (4) and then wait until the unit has finished exposing the screen. Once exposed, turn off the vacuum (2), lift up the lid and use the wooden pole to prop lid open taking care not to rest on the rubber seal.

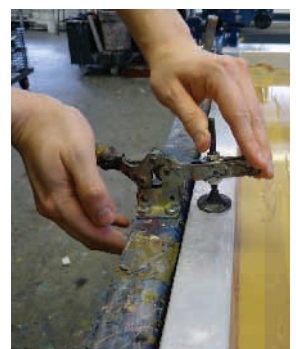


4. AFTER EXPOSING YOUR SCREEN

Shower Hose

Power Hose

Take your screen to the wash out area. Clean the screen thoroughly using the gentle shower hose until your image has come through. Following this, place your screen in the oven for half an hour or until dry.



5. PRINT SET UP

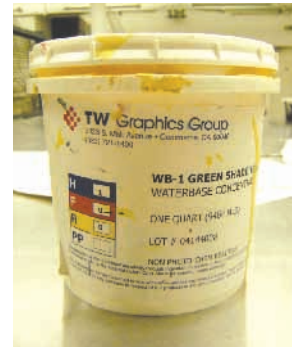
When using the printing bed first adjust the back bar. Never adjust the front bar, this always remains in the same position. Carefully loosen the black handle on either side of the bar and pushing the block part of the handle only, gradually nudge the bar far enough back to allow your screen to fit on the bed. Slightly tighten the black handles on both sides before lifting up the bar and placing your screen on the bed. Pull the bar back down. Lift the screen onto the ledge of the front bar and the ledge of the back bar. If the back bar needs to be adjusted repeat as above. Ensure all screws are tightened so the screen will not move. Once screen is secured to the bed you can check the snap. This is the distance between the screen and the bed. The distance depends on what you are printing and your experience. A distance of 5mm allows for suitable snap off. Ideally the higher the snap the less deposit of ink you will get coming through the screen, so better quality printing.

SCREENPRINTING TECHNIQUES

WARNING EXTREMELY IMPORTANT

When adjusting the back bar or removing the screen after printing do not loosen screws too much as this will impair the working of the printing bed.

The height of the screen from the surface of the bed can be adjusted using the black topped screws at the front bar. Please see a member of GPS staff to adjust the snap if you are printing on something unusually thick. After registering your paper you can turn the vacuum on. This holds the paper in place when the screen is down but releases it when lifted above a 45 degree angle.



6. INKS

Water based inks should contain both pigment and clear flat base (pigment cannot be used on its own). GPS stocks TW base and pigment which is very strong, we recommend starting with a ratio of approx 20% pigment to 80% base which will obtain a semi-transparent colour. The higher ratio of base to pigment the more transparent your colour will be. Alternatively the higher ratio of pigment to base the more opaque your colour will be. Unlike other inks screenprinting inks are limited to a small selection of shades and each artist mixes to their preference, white and black are available and can give a more pastel shade. Mixing and determining of colour will come from experience and practice.

Inks are expensive and should always be recycled where possible, if the ink has hardened slightly a touch of water in the tub will bring it back. Always keep inks in air tight containers. Water based inks can be purchased from the workshop office at the official dispensing times.



7. REGISTRATION

Registration is the correct placing of each successive colour relative to the paper and other colours. First, take a sheet of paper that is the exact size of your printing paper. If the paper has a deckled edge, it will need to be trimmed to a straight edge at both corners on the bottom left hand corner and on the longest edge.

Mark a cross half way down on the left and right side of the sheet outside of the image area. Place the first separation on top of the paper and tape it in the desired position. Mark the crosses on to the separation. Repeat with all other separations leaving previous ones in place.

SCREENPRINTING TECHNIQUES

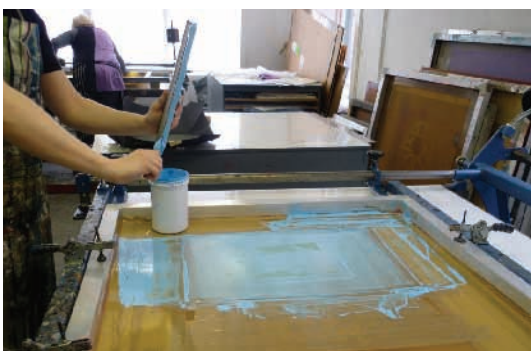
7. REGISTRATION continued

When the screen is fixed to the vacuum bed ready to print the first colour, place the registration sheet with the appropriate separation taped in place, on the vacuum bed under the screen. Move it around until the image on the screen lines up with the image on the registration sheet below. Then place registration lays (card with double sided tape) two on the bottom left corner and one vertical lay on the right hand side of the paper. Each sheet of paper can now be placed in exactly the same position. Repeat this process for every successive separation prior to printing it. This is the same principal regardless of whether you are printing landscape or portrait. If you choose to use the bottom right hand corner your vertical lay should be placed on the left hand side of the paper.



8. PRINTING

Remove the registration sheet and position the first sheet of printing paper against the lays. Place sheets of scrap paper around the printing paper to block off the unused part of the vacuum. This increases the vacuum holding the printing paper. Pour a reasonable quantity of ink along the edge of the squeegee. Lift the screen a few inches and using the squeegee push down and flood the screen with ink in an upwards motion across your entire image. Lower the screen and using both hands on the squeegee apply an even pressure, draw the ink across the image. If the pressure is too light, parts of the image will not print; if too much pressure is applied ink may bleed under the far edge of the stencil. Lift the screen, flood again and remove the printed sheet to the racks. Repeat this for every sheet in the edition. If the image is misprinting for any reason, clean the area with a sponge and fresh water. Pull a few prints onto newsprint until the image prints cleanly. Do not print on to wet or tacky colours.



9. AFTER PRINTING

If the screen is to be cleaned on the vacuum bed, put a sheet of newsprint down under the screen first. Using Mr Muscle, spray lightly onto the exposed area and clean with sponge and water. When clean dry with Blue Roll. Wait until your screen is completely dry before continuing with the next separation. It is important that the holes in the vacuum bed do not get blocked with ink, as this will negate the working of the machine. Use a piece of card to remove ink from screens as palette knives can slash the screens. Clean all squeegees and palette knives at the sink and replace them. All registration tabs, tape and paper should be removed from the vacuum bed. All rags, scrap paper and rubbish should be removed from the floor and binned. Work surfaces are not for cutting on; they are for artwork preparation. If you spill anything on them, clean it up. You will be expected to show a good example and be considerate.

SCREENPRINTING TECHNIQUES



10. RECLAIMING THE SCREEN

All ink must be removed as previously outlined and Mr Muscle sprayed on exposed area to stop staining of screen. Unscrew back bar and from underneath take screen out of bed. Do not lift over the bars, always under. Take screen to the wash out area and place in the wash out booth, spray with the shower hose to remove any ink. Wearing gloves, remove emulsion with decoating agent (stencil remover); put a small amount of the luminous yellow decoating agent (white tub with blue lid) onto the blue brush and work into the mesh in a circular motion to cover the screen. Standing a few feet away from your screen turn the power hose on pointing at the wall of the wash out booth. Gradually move the spray of the power hose onto the mesh of the screen. This will insure you do not put a hole in your screen from too much pressure from the power hose.

Stubborn ink stains and "ghost" images should be removed with haze remover (red tub) and can be left on for as long as possible to get the best result of a clean screen. Haze remover is stronger than acid and one of the most dangerous chemicals in the workshop. It can burn skin and clothes. Gloves and goggles MUST be worn when applying haze remover to the screen. Gloves, goggles and a respiratory mask must be worn when power hosing the haze remover off the screen to protect your eyes and also to protect from the chemical being ingested through water vapour. If in doubt ask a member of staff. When it has been left on for suitable amount of time spray off again with power hose always go in close to screen. Clear away, tape etc from the wash out bay so they don't block the drain, mop the floor and bin your rubbish.

Note: CPS screen wash (white tub) is used as a last resort for screens that are badly stained. It is a dangerous chemical-ask a member of staff before using and make sure to wear protective equipment, gloves and goggles. Screen mesh degreaser (green tub) is used when you have a new screen to remove any greasy residue that may be on the surface of the screen. It is good practice to degrease your screen at least once a month.



Tearing down a print.



SCREENPRINTING TECHNIQUES



11. 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.

SCREENPRINTING TECHNIQUES

12. NOTES ON OTHER TECHNIQUES

Within screenprinting there are techniques that can be explored with practice and experience. These techniques are sometimes used for one off pieces of work and are not always suitable for making editions. The techniques range from:

Direct printing - painting onto the screen itself.

Reduction printing where a substrate is painted on, to block out the mesh of the screen and the ink is pulled through the exposed area.

Pastels and graphite can also be explored through an open screen.

Stencils and collage can be developed in mono screenprinting.

ALL THIS MUST BE DONE WITH CARE AS SCREENS ARE FRAGILE AND CAN BE DAMAGED.

A four colour separation and colour blending are other techniques that can also be explored in more advanced workshops.

All the above techniques are covered in the intermediate class.

13. 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 considerately. 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.

SCREENPRINTING TECHNIQUES

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 is 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.

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 Mr Muscle that we provide, cleaning spilled ink, placing used blue roll in the bin, removing used acetate from all areas, etc. Mr Muscle 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

Screenchem 01236722458

John Purcell Paper 02077375199 www.johnpurcell.net

Thanks to the learning and workshop staff at Glasgow Print Studio

Designed by Hazel Moore

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