INTRODUCTION

This booklet contains a compendium of information regarding the School of Art & Design photographic lab facilities, digital imaging and equipment, available to students.
GENERAL INFORMATION

Art + Architecture Library
Media Union 2nd Floor : Ph. 936.3191
Hours: Mon – Thurs: 8:00 am – Midnight,
Fri: 8:00 am – 9:00 pm, Sat: 10:00 am – 6:00 pm
Sun: 12:00 pm – Midnight

Custodial Services/Locker Permits
Room 1106 : Ph. 763.3132
Helen Hoskins : Mon - Fri: 7:30 am - 4:30 pm!
Roy Gutknecht: Mon -Fri: 4:00 pm - 12:30 am

Jean Paul Slusser Gallery
Room 1102 : Ph. 936.2082
Hours: Tue, Thu : 12:00 – 8:00 pm,
Wed, Fri, Sat and Sun : 11am – 4pm
Closed Mondays and major holidays

Museum of Art
525 State Street : Ph. 764.0395
Hours: Tue through Sat: 10:00 am - 5:00 pm
Thu: 10:00 am – 9:00 pm, Sun: 12:00 – 5:00pm

Pierpont Commons Bookstore
2101 Bonisteel Blvd. : Ph. 668.6022

Photography Lab
Room 1002 : Ph. 763.3527
Hours: posted by front door

Security
Ph. 763.1131

School of Art & Design Student Services
Room 2055 : Ph. 764.0397
Hours: Monday through Friday: 8:00am – 5:00pm

Warren Robbins Gallery
Room 2027 : Ph. 936.0690
Monday – Friday : 9:00 am – 5:00 pm

Work Exhibition Space
306 South State Street : Ph. 998.6178
Monday – Thursday: 11:00 am – 6:00 pm
Friday - Saturday: 11:00 am – 8:00 pm
Sunday: 12:00-5:00pm
FACILITIES

BLACK+WHITE GANG DARKROOM  
(Accommodates 20 beginning students)

- Durst 670 color enlargers to handle 35mm negatives
- EL Nikkor 50mm lenses
- Time O Lite m 72 master timers
- Sanders 8” x 10” speed easels
- 11” X 11” sheets of glass
- Arkay RC print dryer
- Grain focusers

STUDIO (Rm. 2006)  
(Student needs to sign up to reserve the space)

- 20 Foot high ceilings
- Floor to ceiling windows on north side with blinds

- Tungsten and strobe equipment available
- Copy stand and a copy camera available on reserve basis onl
This is the floor plan for the first floor of the photo lab.
This is the floor plan for the second floor of the photo lab.
EQUIPMENT
(For ALL students who are enrolled in a photography class to check out)

Must have a valid U of M student ID

MOUNTING:
- T-squares
- Rulers
- Print positioning toll
- Dry mounting presses
- Paper cutter
- Professional mat cutting equipment
- Tacking irons

DARKROOM:
- Grain focusers
- Glass (for contact prints)
- 8” X 10” speed easels
- 8” X 10” 2-bladed easels
- 11” X 14” 2-bladed easels
- 14” X 17” 2-bladed easels
- 16” X 20” 2-bladed easels

OTHER:
- Tripods
- Lights
- Light stands
- Umbrellas
- Hand coloring materials
- Spotting dyes

EQUIPMENT (cont’d)

(For UPPER CLASS students who are enrolled in a photography class to check out)

Must have a valid U of M student ID

STUDIO USE ONLY:
- Speedotron studio strobe unit
- Flash meter
• Spot light meter
• Copy stand
• Olympus OM 1 35mm camera (with macro lens)
• Tungsten light
• Tripod

**DARKROOM:**
• 10 4"X 5" large format view cameras
• 8” X 10” cold head Beseler enlarger
• Bulk film loader
• 5” X 7” darkroom trays
• 20” X 24” darkroom trays
SOURCES

PHOTOGRAPHIC MATERIALS & CAMERAS

Big George’s Home Appliance Mart
2019 West Stadium Boulevard, Ann Arbor, MI 48103
Ph. 734.669.9500

Meijer’s
3145 Arbor-Saline Road, Ann Arbor, MI; Ph.769.7800
3825 Carpenter Road, Ypsilanti, MI; Ph. 677.7142

Huron Camera
8060 Main Street, Dexter, MI
Ph. 426.4654

MATBOARD, PORTFOLIO, ETC.

Michigan Book and Supply
317 S. State, Ann Arbor, MI
Ph. 665.4990

Pierpont Commons Bookstore (on North Campus)
2101 Bonisteel Blvd., Ann Arbor, MI
Ph. 668.6022

CAMERA REPAIR

Huron Camera and Service
8060 Main Street, Dexter, MI;
Ph. 426.4654

Big George’s Home Appliance Mart
2019 West Stadium Boulevard, Ann Arbor, MI 48103
Ph. 734.669.9500

TEXTBOOKS

Shaman Drum Bookstore
313 S. State Street, Ann Arbor, MI
Ph.662.7407
MAIL ORDER SUPPLIERS

Abbey Camera Inc.
1417-25 Melon Street
Philadelphia, PA 19130
800.252.2239
www.abbeycamera.com

B&H Photo
420 Ninth Avenue
New York, NY 10001
800.947.9970
www.bhphotovideo.com

Calumet Photographic
890 Supreme Drive
Bensenville, IL 60106
800.323.2849
www.calumetphoto.com

Free Style Sales Co.
3124 Sunset Boulevard
Los Angeles, CA 90027
800.616.3686
www.freestylecamera.com

Light Impressions
P.O. Box 940
Rochester, NY 14603
SAFETY

GENERAL SAFETY

It is recommended that students wear gloves and eye protection when handling chemicals, use tongs for printing. Use an apron to protect clothing. Wash hands often. Do not eat or drink in darkrooms. Take frequent breaks. Mix powders under ventilated hood located adjacent to classroom/studio.

EYE WASH

Located in the chemical mixing room. Provides constant, intense flow of water to the eyes in case of chemical splash. It is recommended that students wear eye protection when handling chemicals.

MSDS: (MATERIAL SAFETY DATA SHEETS)

Material safety data sheets are located in lab office. They are attached to wall next to desk. Provide the basic information regarding contents of chemicals, safe handling procedures and accident information.
SAFETY (cont’d)

OVEREXPOSURE

PHENIDONE (1-PHENYL-3-PYRAZOLIDONE)

Phenidone is slightly toxic by skin contact and moderately toxic by inhalation or ingestion. It is a skin and eye irritant; prolonged contact with the powder can cause skin allergies. Its hazards by inhalation and ingestion are similar to those of other black and white developers; Dimezone (1-phenyl-4-dimethyl-3-pyrazolidinone) is a compound similar to phenidone and has similar hazards.

PARA-PHENYLENEDIAMINE (p-phenylene diamine)

This compound, used both for black and white and color development, is highly toxic by all routes of exposure. By skin contact it causes severe skin allergies. Para-phenylenediamine may also be absorbed through the skin. Inhalation of the powder can cause severe asthma, and irritation of upper respiratory passages. Ingestion may cause vertigo, nervous system damage, gastritis, liver and spleen damage, double vision and weakness. It causes tumors in animals. It has a Threshold Limit Value (TWA) of 0.1 mg per cubic meter and is regulated by OSHA at this level in the workspace. The hazards of ortho-phenylenediamine, diethyl-para-phenylenediamine and dimethyl-paraphenylenediamine are similar to those of para-phenylenediamine. Both of these developers should be avoided.

OTHER COLOR DEVELOPERS

Color developers 4-(N-ethyl-N-2-methanesulfonylaminoethy)-2-methylphenylenediamine sesquisulfate monohydrate (Kodak CD-3) and 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulfate (Kodak CD-4) are among the new, widely used color developers that are designed to have reduced toxicity. Their hazards are largely unknown. Color developers are known to cause severe skin irritation and allergies, especially by skin contact with the powders. Solutions can also be irritating. N,N-diethylhydroxylamine is another color developer whose hazards are largely known except that it is an experimental reproductive hazard.
SAFETY (cont’d)

PRECAUTIONS FOR DEVELOPERS

- Buy premixed developer solutions whenever possible, in order to avoid inhalation of toxic powders or skin contact with concentrated solutions.

- Always use the least toxic developer available for any given process. If possible, avoid highly toxic developers including catechin, pyrogallol, and para-phenylenediamine.

- Avoid direct skin contact with developers. Never put bare hands into the developer bath. Use tongs to agitate solutions and ! to pick up prints. Wear gloves and goggles when preparing and handling developer solutions. Gloves should be washed with an acidic hand cleaner such as pHisoderm© and then with water before removing them.

- Mix developers powders in a fume hood or glove box, or wear a toxic dust mask

- For skin splashes, immediately flush affected area with water; for eye splashes, flush for at least 15 minutes and get medical attention. Darkrooms should have a deluge-type shower and an eyewash fountain for such emergencies.

- Follow proper precautions for housekeeping. Label all developer solutions carefully. Make sure that children cannot get into developers and other toxic chemicals.

- All darkrooms require adequate ventilation. Local exhaust ventilation, preferably a slot exhaust hood, is recommended for handling highly toxic developers.

- Clean up spills of developer liquids or powders immediately to prevent unnecessary exposure or contamination of darkroom air. Wear gloves, respirator and protective clothing for cleaning up large spills. Prepare for accidents with a supply of spill control materials.
SAFETY (cont’d)

OTHER ORGANIC CHEMICALS

In addition to developers, a variety of organic chemicals, including amines, phenols and aldehydes, are used in photographic processes. Many amines are used in color processing, while phenol and phenolic compounds are used as preservatives and fungicides in conservation. Formaldehyde, in the liquid (e.g. formalin) or the powder (paraformaldehyde) form, is another organic chemical that is widely used as a preservative and hardener. Miscellaneous organic chemicals include benzotriazole and 6-nitrobenzimidazole nitrate, two azimide compounds used as antifoggants in black and white developers.

TARTARIC ACID (racemic acid)

Concentrated tartaric acid is moderately toxic by skin contact, inhalation and ingestion.

PARA-TOLUENE SULFONIC ACID (p-toluene sulfonic acid)

This acid, used in Cibachrome (color) processing, is highly toxic by every route of exposure. It is highly corrosive to skin, eyes and mucous membranes of the respiratory tract. If ingested, it can cause severe corrosive damage. Inhalation of the vapors can cause sever respiratory irritation.
SAFETY (cont’d)

PRECAUTIONS FOR ACIDS : ACETIC ACID : STOP BATH

• Always wear protective elbow-length gloves and safety goggles when handling concentrated acids. When mixing or diluting concentrated acids, always add the acid slowly to the solution, never the reverse; otherwise the solution may boil and spatter, causing possible acid burns.

• Acid splashes on skin or eyes require immediate flushing with water. For eye splashes, flush for at least 15 minutes and get medical attention.

• If a strong acid is ingested, do not induce vomiting. Call your Poison Control Center immediately and tell them the exact name of the acid and the estimated amount ingested. Have container label and Material Safety Data Sheet at hand.

• Darkrooms require good ventilation to control the level of acid vapors and gases produced by processing baths.

• Cover the acid bath (and other baths) between printing sessions to prevent evaporation and contamination. Discard used solutions that have been contaminated with chemicals. Store concentrated acids and other corrosives on low shelves so as to reduce the risk of face or eye injury in case of accidental breakage.

• Plan darkroom storage with individual cabinets for separate storage of incompatible acids and other chemicals.
TERMINOLOGY

Aperture: The lens opening formed by the iris diaphragm inside the lens. Specifically of the lens, and expressed as a fraction of the focal length. The size is variable. The \( f \) number.

ASA: A system of film speed rating now standard in the United States. Similar is ISO.

Available light: The light condition in which the photographer finds existing at the subject position.

Backdrop: The area surrounding the art to be photographed, usually a neutral wall, seamless paper or fabric to provide a pleasing clean background for the art.

Base: The transparent sheet material, usually acetate or polyester, upon which film emulsion is coated. For prints the base is resin coated paper (RC) or fiber based paper.

Between-the-lens shutter: A shutter designed to operate in a space between the elements of the lens.

Bounce light: Indirect light produced by pointing the light source at a foam core, wall or other surface to reflect the light back toward the subject. The results is a softer, less harsh type light.

Bracketing: To make a number of exposures (some greater and some less than considered to be “normal”) in addition to the “normal” one, with the intent of getting one near-perfect exposure.

Cable release: A long flexible cloth or metal braid-covered plunger which screws into a special threaded socket on the camera body to allow the photographer to depress the shutter without touching the camera to avoid camera shake.

Camera: Literally “room” in Latin. The instrument with which photographs are taken consisting, at least, of a light tight box, a lens that admits focused light, and some device or provision for holding the film in position.

Camera obscura: Latin for dark room. Predecessor to the camera, in which a small aperture allowed images of outside subjects to form by light rays to appear on the opposite wall.

Click stops: Indents in the diaphragm or shutter scale of a lens which produce a tactile indication and an audible click to mark the significant scale settings.

Cocking the shutter: Winding or tensioning the shutter mainspring prior to making the exposure.

Copy Stand: An integral unit of copy board, camera stand and fixed lights for the sole purpose of copying two-dimensional works of art.

Curtain shutter: A shutter variety in which a slit or opening in a strip of metal or cloth is made to travel past the film surface to affect the exposure.
TERMINOLOGY (cont’d)

**Daylight film:** Color film that has been balanced to produce natural color when exposed in daylight or to daylight balanced light such as electronic flash.

**Depth of field:** The region of acceptably sharp focus around the subject position, extending toward the camera and away from it, from the plane of sharpest focus. The boundaries of the depth of field are referred to as the near limit and the far limit.

**Depth of field scale:** A calibrated scale, ring, or chart, often a part of the camera lens mount on which the depth of field for any distance and aperture setting is indicated.

**Diaphragm:** The assembly of thin metal leaves, usually incorporated into the lens barrel or shutter assembly, which can be adjusted to control the size of the lens aperture.

**Diffusion material:** A translucent material placed in front of the light to soften the light.

**Emulsion:** The light sensitive coating on photographic film or printing paper.

**Exposure:** The act of subjecting a photosensitive material to the action of light. The accumulated effect of the action of light on a sensitized material.

**Film speed:** A number indicating the relative light sensitivity of a given film, as determined by some official body such as ASA film speed.

**Filter:** A piece of colored glass or plastic placed in front of the camera lens, in the enlarger or light source to alter the quality of the light reaching the film/paper. Examples: contrast filters for printing, UV filter for camera lens, a colored for studio lights.

**Flash:** A short burst of light emitted by an electronic flash unit either on camera or in the lighting system, that illuminates the scene being photographed.

**f/number:** The numerical expression of the aperture diameter of a lens as a fraction of the focal length.

**Focus:** The lens position that produces a sharp image. The point at which rays of light meet after passing through the lens.

**Frame:** To adjust the position and angle of the camera with respect to the subject for the purpose of containing or composing the image within the boundaries of the viewfinder. The useful area and shape of the film image: the picture.

**Gray card:** A card that reflects 18% gray which gives a known percentage of light falling on it. Used to take accurate exposure meter readings.

**Image:** The photographic representation of the subject photographed. The visible result of exposing and developing a photographic emulsion.

**Latent image:** An invisible image on a photographic material caused by the action of light upon the emulsion.

**Main light:** The primary light source casting the dominant shadows.

**Maximum aperture:** The largest useful opening of the lens. Wide open.
TERMINOLOGY (cont’d)

**Negative:** Any photographic image in which the subject tones have been reversed.

**Perception:** The assimilation of information and the interpretation of information by the utilization of the senses.

**Polarizing filter:** A filter placed in front of the camera lens (and sometimes the lights) to reduce reflections from nonmetallic surfaces like glass, water or shiny paint.

**Positive:** An image in which the tones or colors are similar to those of the subject.

**Process:** The sequence of chemical steps required to produce the desired image or result.

**Sensitivity:** In photography, the susceptibility of an emulsion to alteration by light energy.

**Sharpness:** The subjective impression of clarity of definition and crispness of outline in the rendering of the detail and texture of the photographic image.

**Shutter:** A mechanical device which controls the interval of time that a photographic medium is exposed to light.

**Shutter speed:** The duration of the interval of exposure. The marked settings on the shutter dial.

**Spot meter:** A reflectance meter that reads a narrow degree of light from the subject. Usually in 1, 5 or 10 degree increments.

**Strobe:** A camera or lighting accessory that produces a brief but powerful burst of light.

**Subject:** The object or view to be photographed.

**Tripod:** A three-legged support for the camera.

**Viewfinder:** The aperture or optical device, usually an integral part of the camera, through which or on which the subject can be seen, appraised, and composed.

**Xerox:** An electrostatic means of copying images onto paper or transparent foils.
DARKROOM! ETIQUETTE

Due to the fact that many students use the facilities, there is a need to keep certain courtesies in mind while working to ensure the best conditions for all to enjoy. The following are some simple, but easily overlooked common courtesies to remember.

- Always knock before entering an individual darkroom if the door is closed. Enter only if invited.

- Do not move the tongs from tray to tray. There should be one pair for the developer, one for the stop, and one for the fixer. They are not interchangeable. Stains will result from chemical contamination.

- Do not turn on your enlarger without the negative carrier or lens in place. The excess light could fog your paper or another person’s paper.

- Please do not set wet prints or trays down on the tables or enlargers. This will contaminate the next person’s prints or negatives. An unsuspecting person could put their hands on the wet area and transfer chemicals to their eyes or mouth.

- Clean up all areas after you are finished. **Return all items to the lab monitor or darkrooms.**

- Report any broken equipment to lab monitor.

- Remove your film and prints as soon as possible so that others can also use the facilities. **Prints left in chemicals, wash or dryer will be discarded at the end of the day!**

- **DO NOT** book the studio or copy stand during a class without the explicit permission of the instructor.

- Keep audio equipment at a reasonable level or use headphones. Do not use during a lecture or demonstration.

- Please return equipment promptly so that others may use. Many items such as tripods, light meters, lights, and cameras are in short supply.
DARKROOM! ETIQUETTE (cont’d)

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CONTRAST FILTRATION IN GANG DARKROOM

The enlargers in the gang darkroom are color enlargers. Dialing in magenta for more contrast or dialing in yellow for less contrast can change the contrast in a B+W print. Below are a general guide for contrast grade, the amount of filtration dialed in, and the time added/subtracted to compensate for the filter factor. Your B+W paper without filters is about equal to grade #2. The contrast grades below #2 use the yellow filter to lower contrast. The more yellow filter added, the less contrast your print will have. Grades above #2 are achieved by adding magenta. The more magenta added, the higher the contrast grade.

<table>
<thead>
<tr>
<th>Contrast #</th>
<th>Filtration</th>
<th>Time (% change in initial exposure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>+70 yellow</td>
<td>-40% time</td>
</tr>
<tr>
<td>#1/2</td>
<td>+60 yellow</td>
<td>-30% time</td>
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<tr>
<td>#0</td>
<td>+50 yellow</td>
<td>-25% time</td>
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<tr>
<td>#1/2</td>
<td>+40 yellow</td>
<td>-20% time</td>
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<tr>
<td>#1</td>
<td>+30 yellow</td>
<td>-15% time</td>
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<tr>
<td>#1 1/2</td>
<td>+20 yellow</td>
<td>-10% time</td>
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<tr>
<td>#2</td>
<td>+30 magenta</td>
<td>+20% time</td>
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<tr>
<td>#2 1/2</td>
<td>+45 magenta</td>
<td>+35% time</td>
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<td>#3</td>
<td>+60 magenta</td>
<td>+50% time</td>
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<td>#3 1/2</td>
<td>+75 magenta</td>
<td>+65% time</td>
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<tr>
<td>#4</td>
<td>+90 magenta</td>
<td>+80% time</td>
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<td>#4 1/2</td>
<td>+120 magenta</td>
<td>+100% time</td>
</tr>
<tr>
<td>#5</td>
<td>+170 magenta</td>
<td>+150% time</td>
</tr>
</tbody>
</table>

MAGENTA FILTER PACK
Another way to figure out the filter is for every 20 magenta you add to the filter pack add 20% more time to your exposure.

E.g. Your image is printed at f/11 @ 10 seconds. You add 40 magenta then add 4 seconds to your exposure = f/11 @ 14 seconds. Less than 30 magenta will not make a visible contrast change.

YELLOW FILTER FACTOR
Yellow does not affect your exposure as much and because it lowers contrast your print will need less exposure to lighten it.
MAKING A CONTACT SHEET

A procedure for setting up the enlarger:

- Place negative carrier into the enlarger.
- Raise the head of the enlarger to a high position.
- Turn timer to focus function.
- Set the f/stop on the enlarger lens to f/5.6 or f/8.
- Turn off the enlarger lamp.
- Place photo paper, emulsion side UP, onto the baseboard.
- Place negative sleeve with negatives, emulsion side down, on top of the photo paper. Place piece of clean glass over negatives. Align the photo paper, negatives and glass.
- Make a test strip to determine exposure time: cover all but one strip of the negatives with a fully opaque sheet of cardboard or a notebook. Expose for 5 seconds. Move the opaque object to expose a second strip as well as the first. Expose for 5 seconds. Continue in this manor until all of the negative sheet has been exposed. The last strip exposed will have been for 5 seconds and the first strip for 35 seconds (assuming a full negative sleeve 5 negatives across and 7 rows down).
- Process paper. After fixing one minute, evaluate for correct exposure times. Return to fixer bath and complete processing.
- Make a final contact sheet using the exposure time determined by the test strip. The negative edges should be black with barely visible sprocket holes.
EVALUATING A CONTACT SHEET

• Evaluate the final contact sheet visually in room light (not under safelight).

• The contact sheet will be too dark if the negatives are thin, meaning that they were either underexposed (not enough light hit the film during exposure) or underdeveloped (development was too short or developer too weak).

• The contact sheet will be too light if the negatives are dense, meaning that they were either overexposed (too much light hit the film during exposure) or overdeveloped (development was too long or developer was too strong).

• Underexposed negatives will require shorter exposure time or smaller aperture on the enlarger. Overexposed negatives will require longer printing time or larger aperture on the enlarger. Contrast will change as well.
## EXPOSURE LOG

<table>
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<tr>
<th>Frame</th>
<th>F-Stop</th>
<th>Shutter Speed</th>
<th>Description of Scene</th>
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FILTERS FOR CAMERAS

- **POLARIZING FILTER** - reduces reflections from glass and water surfaces. Darkens sky, reduces haze, can be used similarly to a neutral density filter.

- **NEUTRAL DENSITY FILTER** - increases amount of exposure needed without changing tonal values. This allows you to set the lens at a wider aperture or use a slower shutter speed.

- **80A (Blue) FILTER** - balances daylight film for tungsten light. (Otherwise image will have an amber or orange cast.)

- **85B (Amber) FILTER** - balances tungsten (indoor) film for daylight. (Otherwise image will have a bluish cast.)

- **FL-B FILTER** - balances tungsten film for fluorescent light. (Otherwise image will have a cyan/bluish cast.)

- **FL-D FILTER** - balances daylight film for fluorescent light. (Otherwise image will have a greenish cast.)

- **1A (skylight) or UV (ultraviolet)** - often used as a lens protector. It absorbs ultraviolet rays that the eye does not see, but the film records as a haze.
COLORS OF LIGHT

- **DAWN LIGHT** - shafts of warm sunlight illuminate areas in contrast to still, cool, blue, deep shadows.

- **MORNING LIGHT** - after the mist of early morning has cleared, the amber-yellow light of this time clearly delineates forms and texture.

- **MIDDAY LIGHT** - colors are what we perceive to be the “truest”; this is especially true in summer, when the sun is at its highest in the sky.

- **AFTERNOON** - shadows lengthen, colors warm, and the environment becomes more and more illuminated from the west.

- **SUNSET** - rich redness of light and cooling shadows.

- **TWILIGHT** - on the edge of darkness, the orange glow of sunset can shift to a wild variety of violets, pinks and magenta.

- **NIGHT** - Color! Long exposures, failure of reciprocity shifting color response, light from the moon and street lamps, alterations of atmosphere, all are recorded on film in a different way than the human eye realizes color and light.
BLACK AND WHITE EVALUATION

TERMS USED IN EVALUATING BLACK AND WHITE PRINTS

COMPOSITION - has the print been adequately cropped and distractions eliminated? Are the elements of line, shape, space, texture, light and dark tone presented in an appealing, balanced way? Are certain areas of the print distracting and “noisy”? 

CONTRAST - a print that shows a high standard of control may exhibit good blacks and whites with optimum gray tone range. Contrast refers to the difference in darkness or density between one tone and another. Are details showing appropriately in the highlight and shadow areas?

REFLECTANCE - a print should show appropriate detail and brightness and should not be too light or too dark.

DODGING AND BURNING - are there areas in which are too light or too dark and require manipulation such as the skin tone or background? Does poor dodging and burning show?

GRAININESS - is there an impression of granular texture appropriate to the print? Is visual sharpness maintained?

HIGHLIGHT - is a very bright area in a scene on a print or a very dense, dark area in a negative.

IMAGINATION - is a unique and interesting perspective given? Is something or someone considered in a different way by the photograph?

MOUNTING - are the boards and prints clean? Are edges cut straight? Is there any sign of dry mount tissue on the board or around the print?

PRINT SURFACE - are there cracks, dents, or bumps visible on the print surface when held to the light? Do you see any stains or discoloration?

SHADOW - is a very dark area in a scene on a print often lacking in detail or a very thin, light area on a negative.

SHARPNESS - does the image or part of the image show crisp, precise texture and detail? Is the print inappropriately balanced soft?

SPOTTING - are there any white spots or scratch lines present on the print that need spotting? Does spotting dye show?
DRY MOUNTING PHOTOGRAPHS

SUPPLIES: (provided by students)

- R.C. prints
- Archival Mount Board
  - white, ivory or off-white usually looks best; black – acceptable depending on prints
- Seal Products Dry Mounting Adhesives

EQUIPMENT: (provided by the photo lab)

- Dry Mount Press
  - set to just past 200°F
  - pre-heat for 15-20 minutes
- Tacking Iron
  - set to medium heat
  - pre-heat for about 2 minutes
- Roller Cutter

BEFORE YOUR DRY MOUNT, FIRST SPOT YOUR PRINTS!
BECAUSE IF YOU MAKE A MISTAKE, YOU CAN STILL RE-WASH YOUR PRINTS, AND IF YOU GET A LITTLE SPOTTING DYE ON YOUR MAT, IT’S RUINED.

STEP ONE: Tack dry mount tissue to BACK of print in about 2-3 places, towards the CENTER of the print.

STEP TWO: Using the roller cutter, cut through print and tissue to cut away the white margins in the print.

STEP THREE: Tack the dry mount tissue to the mount board being careful to hold your print perfectly straight and not pull it out of alignment when you gently lift the corner to tack only the tissue to the board.

STEP FOUR: Place mount board, dry mount tissue, RC print “sandwich” into the dry mount press between sheets of paper; EMULSION SIDE UP for 45 SECONDS.

STEP FIVE: Carefully remove your work from the press and allow to cool flat. Under pressure is best, i.e. under a pile of heavy books.
CHEMICAL MIXING PROCEDURE

FILM PROCESSING CHEMICALS AND AMOUNTS

FILM DEVELOPER 1:9

60 ml developer + 540 ml water = 600 ml film developer.

- Get film developer from the lab monitors. **Bring a clean beaker to lab monitor.** They will give you 60 ml film developer. Mix with water (at the temperature of your mixed chemicals, generally 68 F) to make 600 ml. This amount will fill a two-reel film tank (35 mm).
  **Discard after each use.**

STOP BATH 1:9

100 ml stop + 900 ml water = 1000 ml stop bath.

**SAVE:** will turn purple color when exhausted.

FILM FIXER 2:8

200 ml fixer + 800 ml water = 1000 ml

+ 30 ml hardener = 1,030 ml film fixer. **(Add hardener last)**

**SAVE:** Have lab monitor check regularly.

- After you put 200 ml fixer in a beaker, fill with water to make 1000 ml, then add the hardener. Minimizes gas fumes from fixer when hardener is added to concentrate.

FIXER REMOVER 1:9

100 ml fixer remover + 900 ml water = 1000 ml fixer remover.

**SAVE:** will turn clear when exhausted.

PHOTO FLO

Water to fill film tank + 1/2 capful Photoflo.
Gently mix to avoid foam forming on surface.

**DISCARD.**
CHEMICAL MIXING PROCEDURE (cont’d)

PRINT MIXING PROCEDURE

PRINT PROCESSING CHEMICALS AND AMOUNTS FOR INDIVIDUAL DARKROOMS.

PRINT DEVELOPER 1:9

\[ 100 \text{ ml developer} + 900 \text{ ml water} = 1000 \text{ ml paper developer}. \]

Get paper developer from the chemical room. Bring a clean beaker from darkroom. Discard after each use.

STOP BATH 1:9

\[ 100 \text{ ml stop} + 900 \text{ ml water} = 1000 \text{ ml stop bath}. \]

SAVE: will turn purple color when exhausted.

PAPER FIXER 1:9

\[ 100 \text{ ml fixer} + 900 \text{ ml water} = 1000 \text{ ml fixer}. \]

SAVE: Have lab monitor check regularly.

• When stop begins to turn purple, you should have lab monitor test your fixer. Bring fixer in a beaker for testing.

FIXER REMOVER 1:9

\[ 100 \text{ ml fixer remover} + 900 \text{ ml water} = 1000 \text{ ml fixer remover}. \]

SAVE: will turn clear when exhausted.
CHEMICAL MIXING PROCEDURE (cont’d)

PRINT MIXING PROCEDURE

PRINT PROCESSING CHEMICALS AND AMOUNTS FOR INDIVIDUAL DARKROOMS.

PRINT DEVELOPER 1:9

100 ml developer + 900 ml water = 1000 ml paper developer.

Get paper developer from the chemical room. Bring a clean beaker from darkroom. Discard after each use.

STOP BATH 1:9

100 ml stop + 900 ml water = 1000 ml stop bath.
SAVE: will turn purple color when exhausted.

PAPER FIXER 1:9

100 ml fixer + 900 ml water = 1000 ml
SAVE: Have lab monitor check regularly.

• When stop begins to turn purple, you should have lab monitor test your fixer. Bring fixer in a beaker for testing.

FIXER REMOVER 1:9

100 ml fixer remover + 900 ml water = 1000 ml fixer remover.
SAVE: will turn clear when exhausted.
PRINT MIXING PROCEDURE (cont’d)

INDIVIDUAL DARKROOM PRINT PROCESSING PROCEDURES

FIBER BASED PAPER: Must be enrolled in a photo class and provide U. of M. ID.

PRINT DEVELOPING:
2 MINUTES with constant agitation.

STOP BATH:
15-30 SECONDS with intermittent agitation.

PRINT FIXER:
5 MINUTES minimum with continuous agitation.

WASH:
5 MINUTES minimum.

FIXER REMOVER:
2 MINUTES intermittent agitation.

WASH:
10 MINUTES constantly changing water.

SQUEEGEE:
Place print emulsion side down, on slanted white plane in chemical room. Gently squeegee back to remove excess moisture. Be careful print will permanently mark easily if handled roughly. Place on screens to dry. Takes several hours to dry.

• Do not move the print tongs from tray to tray. Tongs must remain in each chemical. This will minimize chemical staining and contamination. You must provide your own tongs.

• Save your stop bath, fixer and fixer remover. Discard the developer. Wash out trays and sink when finished.
Large Format Print Studio

- Flatten all layers before saving image as a .TIFF, .EPS, or .PDF.
- Optimal resolution is 300ppi. If you plan to enlarge more than twice the original size more resolution is better.
- Please attach a color profile to your image i.e.: ColorMatch RGB or Working CMYK. Check samples in print studio for reference.
- The image should be saved on removable media: CD, 100mb zip disk, jump drive, external hard drive, or ipod.
- Allow plenty of time for processing and printing an image, anywhere from 30 minutes to 2 hours depending on size. The images are dry to the touch after printing but Epson recommends that the ink cure for 24 hours.
- All work is priced by the linear foot – all paper is 44” wide. Prices are listed on the door.
- All images must be paid for when they are picked up.

Website references for large format and digital printing:
http://www.epson.com/
http://www.phototechmag.com/previous-articles/sample_article.htm
http://www.scantips.com/basics2c.html
http://www.johnpaulcaponigro.com/resources/files.html
Equipment Check-Out of Non Photo Lab Equipment

The equipment used is the property of the University of Michigan School of Art & Design. You will be financially responsible for any damage or excessive wear and tear to the equipment while it is in your possession. You will also be financially responsible for the replacement cost for any item not returned during check-in.

Equipment available for check-out depends upon the requirements of the individual instructors. You will be required to have a current student ID card. See Joe St. George in Room 2004 to check-out equipment.
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